The MANUFACTURING CONFECTIONER

Published by THE MANUFACTURING CONFECTIONER PUBLISHING CO., 30 N. La Salle St., Chicago, Ill.

VOLUME [illegible] JANUARY 192[illegible]

Cut copy

The Keynote of This Issue:

MODERNIZE *Your* HARD CANDY *Department*

The Sixth Annual Superintendent's Number

Candies shown on front and back covers reproduced through courtesy of PARISI CANDY COMPANY, Chicago

In This Issue

Coming Next Month

Entered as Second-Class Matter October 24, 1922, at the Postoffice at Chicago, Illinois, under the Act of March 3, 1879. Published Monthly. Subscription Price $3.00 Annually.

INDEX TO

The Manufacturing Confectioner's Approved Advertising of

Confectioners' Machinery and Supplies

and Miscellaneous Advertising Directed to Manufacturing Confectioners

POLICY: THE MANUFACTURING CONFECTIONER *is essentially a manufacturers' publication and therefore is a logical advertising medium only for confectioners' supplies and equipment. The advertising pages of* THE MANUFACTURING CONFECTIONER *are open only for messages regarding reputable products or propositions of which the manufacturers of confectionery and chocolate are logical buyers.*

This policy EXCLUDES advertising directed to the distributors of confectionery, the soda fountain and ice cream trade. The advertisements in THE MANUFACTURING CONFECTIONER *are presented herewith with our recommendation. The machinery equipment and supplies advertised in this magazine, to the best of our knowledge, possess merit worthy of your careful consideration.*

HARD CANDY MACHINERY

OTHER CANDY PLANT EQUIPMENT

FLAVORING MATERIALS

GELATIN

CONFECTIONERS' SUPPLIES

MISCEL. RAW MATERIALS

FOR THE PACKAGE AND BAR GOODS DEPARTMENT

SHIPPING SUPPLIES

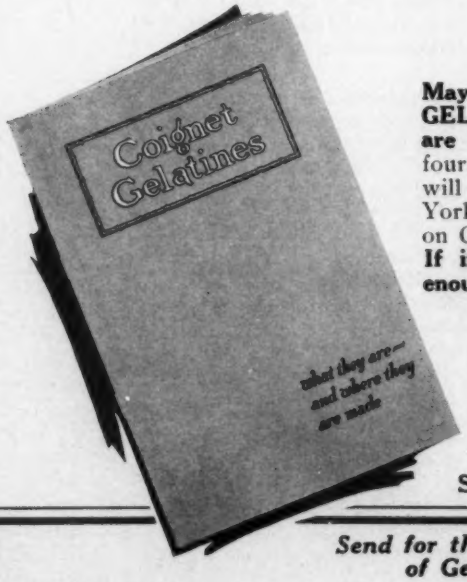
MISCELLANEOUS

Coignet Central Laboratories at Lyons, France

COIGNET Standard of Purity exceeds the Pennsylvania Statute

PENNYSLVANIA is one of a number of states which have established their own individual pure food standards independent of the federal regulations. These state pure food laws are, as a rule, more rigid than the Federal standards—Pennsylvania is an outstanding example.

Coignet set their own high standard of purity for their food gelatines—a standard more exacting in purity requirements than any food law in United States—Federal or State. Hence, the analysis of every pound of Coignet gelatine at port of importation, by U. S. Bureau of Chemistry, is merely a matter of form.



May we send you our booklet "COIGNET GELATINES—what they are and how they are made? With your inquiry kindly send four ounces of the gelatine you are using; we will make an impartial analysis at our New York Laboratory and quote you our best price on Coignet gelatine of corresponding quality. **If interesting, we would like to send you enough for a batch size test.**

COIGNET GELATINES

17 State St., New York, N. Y.

Stocks and selling agents at all principal distributing points

Send for this free booklet—every buyer of Gelatines should have it.

THE PUBLISHER'S PAGE

EARL R. ALLURED, Publisher
Subscription Price, $3.00 the year. Single Issues 50c.
A Specialized Technical and Commercial Magazine for Confectionery Superintendents, Purchasing Agents and Executives.
Published Monthly on the 15th by
The MANUFACTURING CONFECTIONER PUBLISHING CO.
30 North La Salle St., Stock Exchange Bldg.
CHICAGO
New York Office, 5 Cortland Street, R. W. Younie, Mgr.
Phone: Cortland 2156

A New Year's Shop Talk

THIS issue is the first of a series in which different major classifications of confectionery and other specific phases of the business of manufacturing candy on a commercial basis will be made the subject or keynote. We hope in this way to present more complete discussions on various phases of one general subject so that our readers can have before them at one "session" a reasonably comprehensive and conclusive digest of the most progressive thought on one specific phase of their business at a time. For instance: In an early issue we will concentrate on "gums and jellies," another on "marshmallow and nougat," another on chocolate and chocolate goods, etc. The "pan goods" number will be our issue of November.

The sequel to this issue will appear in August of this year—on the eve of the big hard candy season. Another issue will be a Package Number which we expect will be practically a text book on candy wrappings and packaging from the viewpoints of purchasing, production and sales.

Our Most Successful Year

Our books closed last year with the largest business and largest net profit in the history of this magazine. This first issue of the new year starts off with the biggest and most profitable issue we ever published—by nearly 40 per cent. And best of all our assets include an increasing number of the most genuine loyal business friendships; what more inspiration could mortal man desire to start the new year with (unless it be a new heir† to the throne).

What seemed like a highly idealistic publishing policy to some supply firms 6 years ago has proven to be economically sound and in line with progressive trends in business generally and business publications in particular.

High Publishing Standards

From the inception of this publication our feature articles have been original manuscripts prepared exclusively for us. We solicit and accept advertising from the equipment and supply field only and we sell our space solely on its merits as a medium of contact and prestige with the manufacturers of confectionery—no other consideration. We do not accept advertising contracts with "free readers" attached to the acceptance; no advertiser's propaganda disguised or otherwise finds a place in our columns. It takes courage to maintain an honest editorial independence during the formative period of a publication but its compensations are lasting. We try to use a quality of printing and paper stock which properly reflects the quality of the editorial and advertising matter. (This paper stock is a special mill run of high grade ivory enamel made exclusively for us.)

Highest Advertising Rates

It takes real money to maintain this high publishing standard and we make no apology for our high rates, in fact, we very seldom have occasion to defend them. The progressive, reputable supply manufacturers appreciate the opportunity afforded by this publication to reach the manufacturers of confectionery over a national area with one medium; when you look at an advertisement in this magazine you know the supply firm has paid a rate which is 15 per cent to 50 per cent more than other confectionery publications. We have no price inducements whatsoever to make—only a quality proposition throughout—a quality publication with a quality circulation that means *complete* coverage of this manufacturing field with no waste distribution. Kindly keep this in mind when some equipment or supply firm asks you what publication they should use. You will be doing your supply friend a real service and indirectly increase the usefulness of this publication to you.

†*Announcing*
ALLEN ROBERT ALLURED
Brand New Advertising Manager of The Manufacturing Confectioner as of January 11, 1927. Weight: 140 ounces.

NEW YEAR'S EDITORIAL

Bury the Crepe! This is 1927

A NEW era has descended upon the candy industry, an era of scientific progress and of mutual understanding. The big brother advertising movement which is being engineered by the N. C. A.; our gradual willingness to share trade secrets for the common good; and the co-operative sessions of some of the larger coating manufacturers looking toward the standardization of low-priced grades and the eventual elimination of the guarantee, are but a few outstanding incidents of trade good-will which have crystallized during the past twelve months. Probably nothing causes a trade to find itself or to pull together for the general good more readily than the aggressions of a common enemy. These are such forces as the combines or monopolies which occasionally threaten our sources of supply and the constant barrages of anti-candy propaganda which filter into the press and to some extent stultify our sales and advertising efforts.

During the past year we have learned a lot of new things about raw materials. Old-line practical candy-makers whose earlier vocabularies bespoke "strong sugars" and "doctors," today converse with equal freedom on hydrogen-ion concentration, colloidal disintegration, and the activities of enzymes. To the extent that they are keeping abreast of their industry, they are becoming *practical candy chemists!*

Notable progress has been made with two new sugars—corn sugar, or dextrose; and fruit sugar, or levulose. These two are the inseparable twins of honey and invert sugars. They are new only in the sense of their isolation commercially. The former, corn sugar, has found its way in steadily increasing quantities into the candy, ice cream and preserving industries. About these sugars, the Bureau of Standards of the U. S. Department of Commerce has this to say:

> **"* * * the question of the introduction of the new sugars, dextrose and levulose, into commerce has now become of such far-reaching importance and has such vast economic possibilities that any legislation (such as the Corn Sugar Bill) is a mere byplay. Levulose is 1¾ times as sweet as sucrose and is superior in practically every other respect to sucrose. It is the supreme sugar. * * * We are now proceeding with levulose production experiments a semi-factory scale."**

Fondant has now been made directly from the juice of the sugar cane and is now being produced in small quantities by a sugar factory in Louisiana.

Another field of raw materials whose intensive study is bringing about radical changes in our manufacturing methods is the colloids—the gums, the gels, the albumens and the pectins. The Bureau of Chemistry envisaged the commercial possibilities of milk albumen. Powdered apple and citrus pectins which give new natural textures to fruit jellies are now being developed in a serious way. New applications have been found for animal gelatine, including use to retard the crystallization of sugar. Even chocolate, now studied as a colloid, promises to yield the "open sesame" to the age-long problem of graying.

The value of yeasts and of enzymes such as invertase, diastase, etc., for breaking down creams and affording variable control of inversion is becoming better appreciated and the "timing" principle is being successfully employed in long range storage of the finished product. Those quasi-confectioners, the nougat cream people, have been prompt to seize upon these organisms to bring out new lines with what are reputed to be remarkable properties.

Equipment manufacturers have adapted to chocolate liquor the machine that in the last three years has made "Duco" the infant prodigy of the paint industry. The supply field has responded to the demand for a more exacting standard for French walnuts. Elsewhere, progress is being made with vacuum-carbon disulphide methods of sterilization of shelled nuts and other raw materials.

A promising trend of the times is the establishment of the Essex fellowship at Mellon Institute for practical research with animal gelatines, and the Lehn and Fink fellowship on essential oils at Columbia University. So bury the crepe, brother! This is 1927.

Editorial

The $50,000,000 Cocoa Swindle

World Cocoa "Corner" throws spotlight on questionable status of Cocoa Exchange

THERE will appear in next issue a hitherto unpublished letter from Wessels, Kulenkampff & Co., dated March 4th, 1926, in answer to the editorial which appeared in the February 1926 issue of the MANUFACTURING CONFECTIONER under the caption "The Case for and Against the New York Cocoa Exchange." This editorial, which was based upon wholesale interviews with importers, dealers, brokers, speculators, manufacturers, bankers and Wall Street investment houses, attracted widespread attention throughout the entire cocoa industry. Wessels, whether nominated by the Exchange as their official spokesman, or self-appointed for the purpose, undertook to answer this editorial and to define the status of the Cocoa Exchange in this letter.

Since the publication of this editorial and the receipt of Wessel's reply, the complexion of the cocoa market has undergone a number of dramatic changes, bearing out in the main, the manufacturer's arguments against the Exchange. No longer is "rubber" the favorite topic of enlightened conversation; cocoa now offers all the elements of a good dime novel—surprise, thrill, not to mention its share of tragedy.

We are today witnessing what we are informed is merely the beginning of one of the most audacious cornering attempts in the history of modern marketing. Not content with first selling to dealers a part of the crop, as in former years, the so-called British Combine (reported to consist of African and Eastern Trading Co., Anglo-Guinea Trading Co., Niger Co., and Frame & Co.) has proceeded at the very outset of the crop to corner the entire production of Accra Cocoa! Rumor has it that the two powerful warring factions, the Bank of England and the Estate of the late Lord Leverhulme, have ceased quarrelling among themselves long enough to finance jointly this stupendous and highly lucrative undertaking.

There are indications even now that the dangerous ricochetting of prices set in motion by the Combine, capitalized by the awakening negroes and attracting uninformed speculation through the ready channels of the Exchange, has already exceeded the original aims and purposes of the Combine and in some measure at least, passed beyond their control.

We Carry the Bag

Who carries the bag? In the end it will be the manufacturer. One of the larger moneyed dealers, a firm closely identified with the confectioner's supply field, boasted that they had already cleaned up on the Exchange a cool million and a half! That million and a half is blood money. It is coming out of the pockets of the suckers, you and me and the rest of us. According to estimates in the street between $60,000,000 and $70,000,000 will be required to finance the corner. Present levels already indicate that the chocolate industry will have to pay $50,000,000 more for their supply of cocoa this year than they paid last year. And for no good reason.

We have yet to see the figures of world production in support of famine prices. Consumption has been marking time. When it suited the purpose of the Combine to tell the trade that the Accra crop was "large, early and of good quality," they did so, for did they not control all the avenues of information? The poor, deluded manufacturers held off, let their stocks even of finished coatings run to the point of exhaustion. The Department of Agriculture began condemning African cocoa. One of the dealers plunged in heavily. One by one the others followed. A new story was now prepared by the Combine for the nervous and wholly gullible Exchange market. The dominating crop was no longer "large, early and of good quality," but short, late and largely unfit for domestic consumption. Enter Mr. King, whose wholesale purchases for the Combine set fire to the mounting stores of powder.

Why the Record Shipments in October and November

The vice president of one of the largest coating manufacturers located in Brooklyn, disgusted with life on the Exchange, hastily decided upon a change of climate. But London was already there when he arrived. Perhaps the sages of Hershey saw to that. The scare was now genuine, the manufacturers in desperate need of stocks to replenish their diminished reserves. With the brazen announcement from the now firmly entrenched Combine that they proposed to parcel out limited amounts of cocoa month by month during 1927, the frenzied demand that has become history, was begun. To quote our esteemed contemporary, Messrs. Wessels, Kulenkampff & Co.,

> "*Record shipments from the Gold Coast during October and November* and a hand-to-mouth buying policy on the part of manufacturers everywhere, did not inspire much confidence in prices ruling four weeks ago, when what was generally considered a reasonably high level had been reached for that

(*Continued on Page 27*)

Hard Candy from the Chemist's Viewpoint

by Dr. A. P. Bryant

Consulting Chemist, National Confectioners' Association

IN the production of hard candy the object is, of course, to obtain a product which will not crystallize, but will remain transparent for a long time. Sucrose (cane and beet sugar) when cooked up alone will not make a satisfactory hard candy unless some "doctor" like cream of tartar is added to invert some of the sugar. Invert sugar in the proper proportion will prevent the crystallization of the sucrose, but it takes very little excess to produce stickiness because of the hygroscopic or moisture-absorbing nature of the levulose which is one of the constituents of invert sugar.

Corn syrup also has the property of preventing crystallization of sucrose and is more suitable for use with sugar because it is easier to control the amount of invert sugar which will be formed during the cooking, is less expensive, and can be used in relatively large amounts. Both the dextrose and the dextrines of corn syrup help prevent the graining of the candy. An excess of corn syrup produces a tendency to absorption of moisture and consequent stickiness.

It follows, therefore, that in the production of hard candy enough corn syrup or invert sugar must be used to bring about the desired physical condition and at the same time give a dry candy. There are several factors which affect the result, notably the temperature and time. The higher the temperature and the longer the time the greater the inversion of the sucrose and the greater the tendency toward stickiness. This is, of course, the reason why the vacuum kettle plays such an important part today in the manufacture of hard candy because both temperature and time are lowered. Other factors affecting the result are the amount and the character of the water and the "strength" of the sugar and the corn syrup.

Open Fire Cooking

With open fire cooking it is well understood that the temperature must be raised to at least 300° and usually higher, but it should never be carried above 320°. Even at these temperatures there still remains a trace of water which may be increased during pulling or running through the forming machines by absorption of a little water from the air so that the finished candy may carry one or two per cent moisture. If through low cook or too great absorption from the air the water content reaches three per cent or more the candy will grain off or become permanently sticky.

In the cooking it is desirable to bring the batch to the finishing point as rapidly as possible without scorching. This latter danger can be reduced by the addition of a little fat or oil, say one and one-half ounces per one hundred pounds.

There will of necessity be some inversion of the sucrose during the boiling and if the batch scorches the amount of inversion increases very rapidly indeed with the result that the finished candy will be sticky. The object of the fat or oil is to make the batch boil more freely by reducing the surface tension so that the bubbles are smaller and the whole mass boils more freely and easily in the kettle.

In the manufacture of high grade hard candy only the best sugar should be used. This does not necessarily mean cane sugar because beet sugar is often fully as good as the best cane sugar.

Vacuum Cooking

Under vacuum the boiling point is reduced very greatly so that the same results can be obtained at a much lower temperature and quicker time. There are so many different kinds of vacuum apparatus that no exact method of operation can be given covering all, but in all kinds vacuum cookers the candy is subject to less inversion and more corn syrup can be used and still obtain a dry product. Here again a small amount of fat or oil frequently brings more satisfactory results with less danger of loss of sugar by entrainment due to the formation of large bubbles which break with considerable force, throwing a spray

of fine particles into the upper part of the cooking chamber which may be carried off with considerable loss.

Factors Causing Inversion

It has already been pointed out that temperature and time have great influence on the inversion of the sugar so that the lower the temperature and the shorter the time of cooking the better the results providing the moisture has been removed to the proper degree. Another very important factor is acidity which even though due to weak organic acids has a marked influence on the inversion of the sugar. For this reason a dryer is sometimes used to counteract such faint traces of acidity as may be present. These driers are either lime water or sodium acetate, or sodium phosphate or some other very weak alkali or alkaline salt. Too much drier is worse than none because it causes scorching and discoloration. Driers of unknown composition should never be used because they are very likely to contain bisulphite of soda which, although serving admirably as a drier, acts also as a bleach and will leave a trace of sulphur dioxide in the candy making it contrary to Pure Food Laws Standard; National and State.

The factory water supply has an important bearing on the results. Most water supplies contain a little lime which is beneficial. Some supplies contain ordinary salt (sodium chloride) or chlorides of lime and magnesia and these compounds are harmful in a water supply, causing sugar inversion. Distilled water, condensed steam, rain water or very soft surface water sometimes cause trouble on account of lack of lime salts; this of course, can be offset by use of a little lime water or sodium acetate.

Summary

1—*Cook as rapidly as possible, avoiding scorching.*

2—*Cook at as low a temperature as practicable.*

3—*Use a little lime water or a very little sodium acetate if the candy is not dry enough—especially when the water supply is not the most favorable. Avoid unknown driers as they are likely to contain bisulphite of soda.*

4—*Add a very small amount of fat or oil to prevent formation of large bubbles.*

Typical Cooking Department in Hard Candy Plant

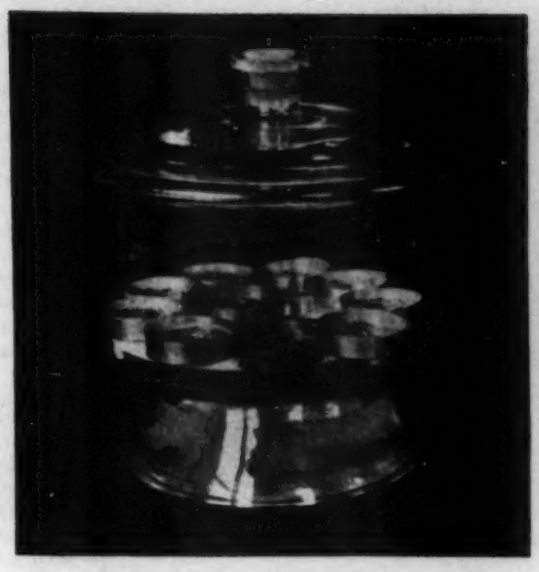


Fig. 1.
Desiccator containing hard candy samples in an atmosphere of 70 per cent relative humidity. Candy has absorbed moisture and has crystallized and become opaque.

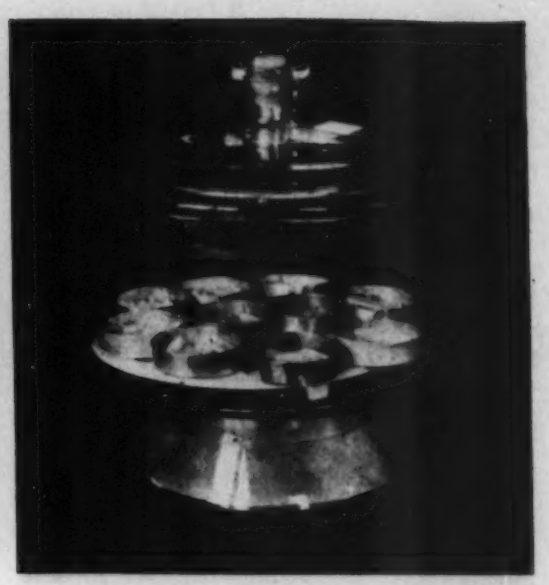


Fig. 2.
Desiccator containing hard candy samples in an atmosphere of 30 per cent relative humidity. Candy has not absorbed moisture and has not grained in the slightest degree. After four months the luster is practically the same as when it was made.

What Is the Shelf Life of Your Hard Candy?

[Method of Measuring Tendency of Hard Candy to Absorb Moisture and to Grain and Become Sticky When Exposed to Atmospheres of Different Relative Humidities]

by H. S. Paine

Carbohydrate Laboratory, Bureau of Chemistry, U. S. Department of Agriculture

THE TENDENCY to absorb moisture from the atmosphere varies with different types of hard candy. It is very desirable to have an approximate measure, at least, of this tendency. A rough idea may be obtained by simply exposing the candy to the air and observing its appearance after a certain period. This method is subject to considerable error, however, in view of the variation in humidity of the atmosphere. Thus, in comparing the tendency of two lots of hard candy to absorb moisture and to grain and become sticky, a close comparison cannot be made if, as frequently happens, the atmospheric humidity was different on the days the two lots were exposed to the air.

A more reliable method is to place the candy in a container in which the humidity of the air is controlled at a definite value. The results are then always reproducible and comparable. This method of observation is illustrated in Figures 1 and 2. The containers are glass desiccators such as are commonly used in chemical laboratories. The relative humidity of the air in the desiccator is controlled by placing in the bottom of the desiccator a mixture of sulphuric acid and water. The relative humidity depends upon the proportion of each, the higher the proportion of sulphuric acid the lower the relative humidity.

The samples of candy were placed in aluminum dishes and these were set on a perforated porcelain plate in the upper part of the desiccator above the mixture of sulphuric acid and water. These aluminum dishes can be weighed from time to time and the amount of water absorbed noted from the increase in weight. Much information can also be obtained by simply observing the ap-

pearance of the candy. The first effect of absorption of moisture is to produce "graining," i.e., crystallization of the sugar in the candy, which is immediately noticeable by the loss of lustre and gloss and the production of a somewhat opaque surface. This crystallized surface is at first only a mere skin, but after crystallization has started it continues progressing into the interior of the candy until the entire piece is crystallized. This crystallized surface does not absorb moisture at the same rate as the original amorphous (non-crystallized) glossy surface.

The effect of various weather conditions can be easily reproduced by the arrangement described. For instance, by using a sulphuric acid and water mixture of such proportion as to give a relative humidity of say 90 per cent, and setting the desiccator in a warm place, the effect of a sultry, humid summer day can be reproduced and the behavior of the candy under these conditions can be accurately determined in advance.

Figure 1 shows a desiccator containing a mixture of sulphuric acid and water in such proportion as to give a relative humidity of 70 per cent. The pieces of candy have crystallized and lost their luster. Figure 2 shows a desiccator containing a mixture of sulphuric acid and water in such proportion as to give a relative humidity of 30 per cent. The sample of candy in this desiccator, which is four months old, has undergone no crystallization whatever and is as glossy and lustrous as when just made. These two samples are shown side by side in Figure 3, illustrating the influence of atmospheric humidity upon crystallization. It is primarily by virtue of crystallization (graining) that the luster is lost, since an amorphous, non-crystallized hard candy surface is naturally very lustrous. The absorption of moisture on the surface of hard candy acts in such a way as to accelerate crystallization. The experimental samples of candy shown in the photographs were neither colored nor flavored, as it was desired primarily to study the absorption of moisture.

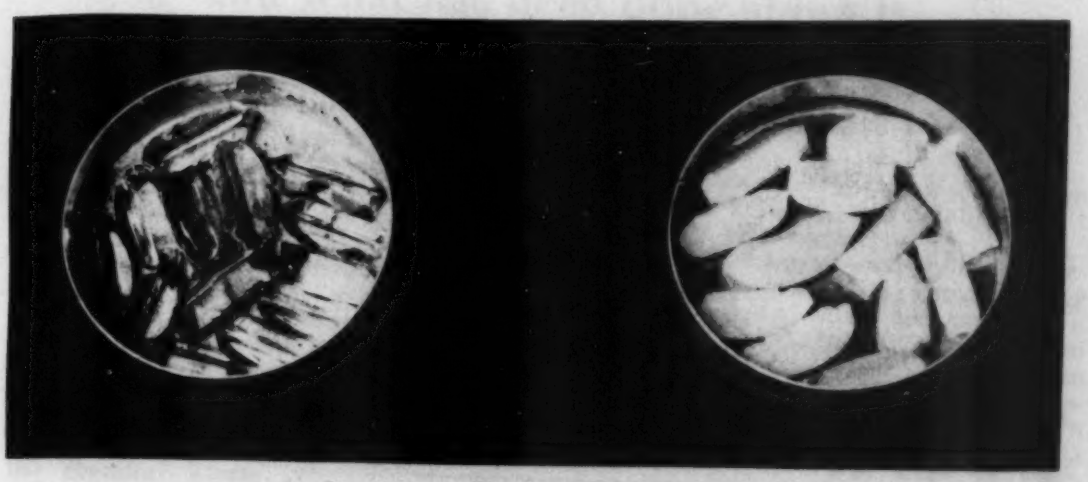
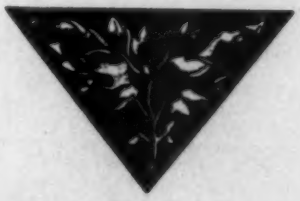
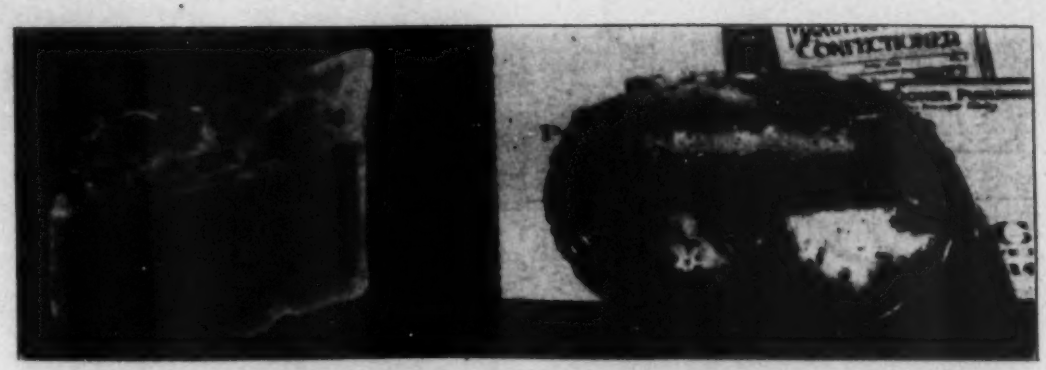


Fig. 3.
Near view of samples of candy taken from the desiccators shown in Figures 1 and 2. The clear, lustrous samples at the right are from the desiccator shown in Figure 2. The opaque, crystallized sample at left is from the desiccator shown in Figure 1 on opposite page.





Both the samples of candy photograghed above were made from the same batch. The one at the left was exposed to an atmosphere of about 75 per cent relative humidity; note the regular growth of crystals (grain). The piece on the right which was kept in an air tight container is clear and transparent and no "grain" formation on outer surface.

The Hard Candy Problem

and what has been done about it

by Herman Lebeson, M. Sc.

Consulting Chemist, Chicago

Associate Technical Editor, The Manufacturing Confectioner

THE world's sugar production for 1925-26 was over 24,000,000 tons eight to ten per cent of which was consumed in the form of confection. Add to this the quantities or corn syrup, various starches and dextrines generally used in conjunction with sugar and you have a fairly good conception of the importance of the confectionery industry in relation to the sugar and the corn products industries.

And yet a search in the chemical literature on carbohydrates, replete as it is with the most painstaking research on the chemical constitution of sugars and starches, and on their processes of production, there is very little scientific data published relating the use of these basic materials in confection, and still less with regards to the manufacture of hard candy.

Some facts were carried over. The sugar chemist and the chemist who specialized in the manufacture of products from corn sought to apply some results of their research to this industry.

This enabled them to supply the confectioner with various grades of sugar suiting his special needs. They also produced a corn syrup of high quality, manufactured under rigid chemical control, so that the confectioner could standardize his formulas with a certain degree of assurance. In carrying out this work a small beginning was made to study the chemical reactions that go on in the kettle during the boiling of sugar with or without an inverting agent. But it was not until recently that the carbohydrate laboratory of the Bureau of Chemistry and a number of chemists engaged in the confectionery industry began to study sugars from the candy maker's point of view.

Herman Lebeson, the author of this article, received his B.Sc. and M.Sc. from Ohio State University in 1915, specializing in food chemistry. After serving as Assistant State Chemist of Texas for two years, he took up further graduate work at the University of Illinois. During the war, he enlisted in the Chemical Warfare Service and was placed in the Gas Research Laboratories at Washington. After demobilization, he joined the Koppers Laboratories at the Mellon Institute for Industrial Research.

Since 1922, when he became Chief Chemist of Bunte Bros., he took a keen interest in the problems affecting the confectionery industry and especially those relating to the manufacture of hard candies. During his connection with Bunte Bros. he also served in the capacity of Chief Chemist of the Midwest Sugar Refining Corporation, located at Riverdale, Ill. This gave him an opportunity to study the sugar industry at close range, especially its relation to problems of the manufacturing confectioner.

Last September, he resigned his position with Bunte Bros., and opened a consulting laboratory devoted especially to the confectionery industry and its raw materials.

The Hard Candy Problem Defined

What is our ideal of hard candy?

We want to make

pulled candy which will take on and hold a satin finish in all sorts of weather, or clear goods, like fruit drops and suckers, that will stand up under high humidity and yet remain transparent if not indefinitely at least until it reaches the consuming public.

To make hard candy a year around business it is not sufficient that it be manufactured in an air conditioned factory. The goods, if sold in bulk, will be exposed to the moisture-laden atmosphere of the department store and chain store, to the sudden changes in relative humidity through all seasons and in all parts of the country. Even package goods require a certain length of time for consumption and must therefore be made as moisture resistant as possible.

We might fill this requirement by boiling pure sugar without any inverting agent, sucrose being least hygroscopic of the sugars we generally use. But here we meet the problem of graining, or crystallization, which sets in very readily as soon as a pure sucrose solution reaches a certain supersaturation point. In the light of our present knowledge either a non-crystalline material or one which crystallizes with difficulty must be added to retard or prevent the crystallization of sucrose. Thus we employ corn syrup—a mixture of dextrine, dextrose and maltose—or invert sugar—a mixture of equal parts of dextrose and levulose. Invert sugar we rarely add directly to hard candy. Instead we use an acid or an acid-salt like cream of tartar to change a part of the sucrose to invert. However, corn syrup and invert sugar are more or less hygroscopic in nature and by adding these to sucrose we decrease the moisture resisting properties of the candy.

This, in substance, is the problem of hard candy.

Similar Achievements in Other Fields

Is there an answer to this problem? Are not the two requirements mutually exclusive? Is our ideal of hard candy anywhere near attainable?

The answer to these questions lies in your faith in the power of chemical research.

Twenty years ago it looked just as distant a hope to convert liquid vegetable oil into a hard fat. Now the hydrogenation of oil is an establised process with an annual output of hard fat equal to the annual production of lard.

Twenty years ago the writer attended a lecture on the fixation of nitrogen from the air by means of an electric arc with the Niagara Falls as a source of power. The lecture was given before a high school class in chemistry by an electro-chemical engineer closely connected with that work. To this day I remember the hopeless state of the project. The nitric oxide formed in the hotest part of the arc, 3000° centigrade, would dissociate upon reaching the cooler zone and thus return to its elements as nitrogen and oxygen. Seven years later Prof. Haber of Berlin succeeded in fixing atmospheric nitrogen to produce ammonia. Ammonia could be oxidized to nitric acid furnishing nitrates required for the manufacture of explosives. When the war broke out in 1914, Germany was independent with regard to nitrates.

Nitrogen fixation is now one of the most firmly established industries in the United States. Its output of anhydrous ammonia for 1926 is estimated to be over 100 tons per day.

Many similar achievements of chemistry during the last two decades could be cited, but these two instances will suffice to illustrate that it is largely a question of faith—faith in the power of chemical research.

Factors in Inversion

In hydrogenation of oils and in fixation of nitrogen catalysis played the leading role. The inversion of sucrose into dextrose and levulose is also caused by a catalyst. A catalyst or a catalytic agent is one which accelerates or retards the speed of a chemical reaction without suffering any loss or gain in itself. In our case the hydrogen ion, an atom of hydrogen carrying a positive electrical charge, is the catalyst. The hydrogen ion may come from the acid, acid-salt, or corn syrup. It may also come from the ionization of the water into $H^{+}OH^{-}$. The amount of inversion produced in a given case depends on the concentration of the hydrogen ion, the time and temperature of boiling.

When working with pure sugar and an acid or an acid salt the reaction is definite and clear cut. Each factor could be standardized to produce the desired amount of invert in the final product. There would be, however, little free play left to allow for any normal deviation. Two batches drawn from the same melt ten minutes apart would have widely different amounts of invert. The problem in this case is to neutralize the catalyst as soon as it has performed its function of inversion.

When boiling with corn syrup we rely on the dextrin, dextrose and maltose to prevent crystallization. While these are

somewhat hygroscopic they are not nearly as thirsty as levulose. It is therefore of the utmost importance to prevent inversion of sucrose as far as possible. Here, too, something is needed to counteract the acidity or the hydrogen ion effect of the glucose.

Inversion and Crystallization

Noel Deer, Emile Saillard and a number of other workers in the sugar industry found that chlorides, nitrates and sulphates accelerate inversion—while salts of weak acids, such as formates, acetates, oxalates and sulphites retard inversion. From the work of several dutch chemists it seems that alpha amino acids like glycocol and alanine being amphoteric counteract the destructive action of alkali on dextrose and levulose and the invert action of hydrochloric acid on sucrose. While these reactions are of paramount importance to the confectionery industry, I doubt whether any close study has been made of their application to our problems.

Then there is the question of crystallization. Beet sugar molasses is a residue containing about 50 per cent of sucrose which was prevented from crystallizing by 10 to 12 per cent of salts and about 20 per cent of gums. Kusnetzow (Zeit. Ver. Deutch. Zuckerind. Jan. 1926, pp. 19-24), working with pure sugar, finds that while calcium chloride accelerates crystallization sodium and potassium carbonates hinder crystallization. The alkali carbonates were always regarded as molasses formers in the sugar industry. Robert Whymper, struggling with the same problem in Japan, finds that even small quantities of ammonium chloride will hinder crystallization. Dr. Whymper, in his communication to the Confectionery Journal (London) of Dec. 31, 1925, so well outlined the problem that it is only fair to allow him to speak for himself:

> **1. "What protective colloid of a non-hygroscopic nature is available for preventing vitreous sugar in the form of boiled sugar-drops from crystallizing?**
> **2. Failing a colloid, other than the sugars at present used, what substance, if any, can be added to prevent crystallization of sucrose?**
> **3. What temperature and speed of cooking produce the best and driest sugar drops on any given mixing, and what are the exact details of the process and mixing?**
> **4. What is the nature of the hygroscopic decomposition products of dextrins, dextrose, levulose, etc., during heating? Is it possible to stop this decomposition on the one hand or to prevent self-inversion of sucrose or heating on the other?**
> **5. What is the best hydrogen ion concentration for the making of driest drops that will not crystallize easily?"**

This is the field of research in the manufacture of hard candy that now confronts the confectionery chemist. Considering the number of factors involved it will require the efforts of many men for a long time before the ideal hard candy is obtained. But while working on this field many new applications of chemistry to our industry will come to view. A more thorough study will be made of the physical and chemical properties of the carbohydrates in daily use in our industry. A great store of knowledge will be placed at the command of the confectioner.

And where there is knowledge there is light.

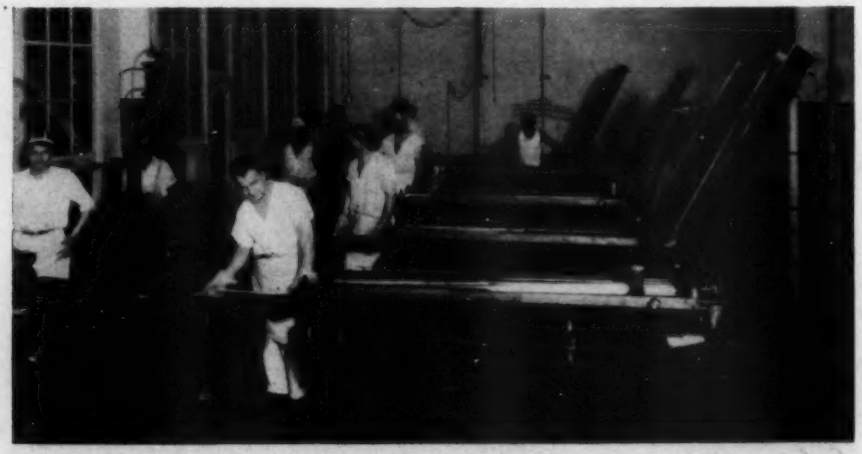
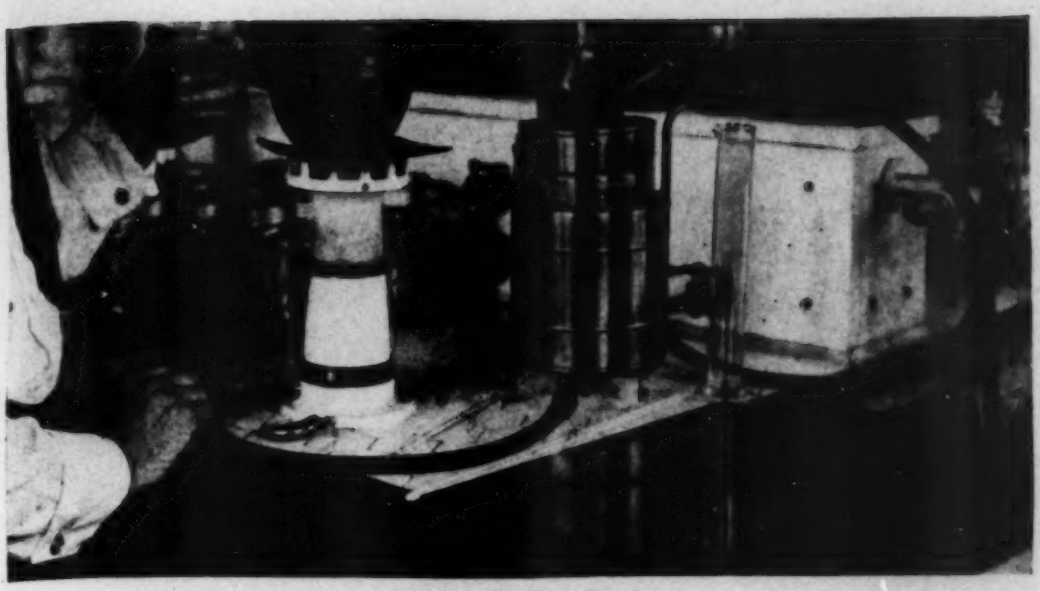


Photo courtesy Thinshell Candies, Inc., Chicago

Battery of batch rollers in action hooked up with automatic plastic machines in foreground and sucker machines in background.



Cooking the Test Batch

The Candy Test for Sugars

A practical simple test which every candy manufacturer can use to determine the quality of sugar before using it in candy

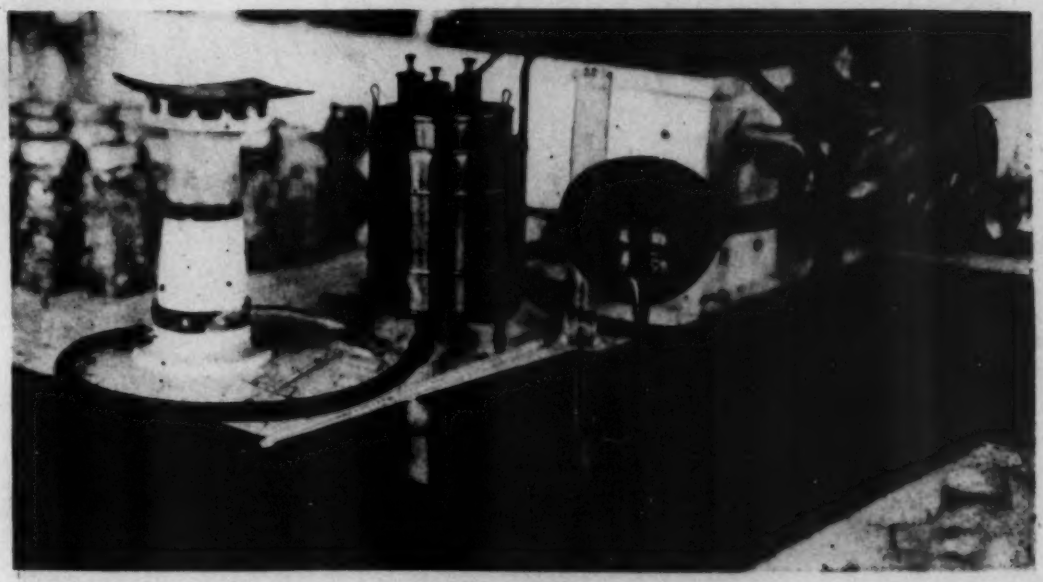
by J. A. Ambler

Carbohydrate Laboratory, Bureau of Chemistry
U. S. Department of Agriculture

IN THE manufacture of hard candy the quality of the sugar used is of great importance, not alone from the standpoint of "strength," but also from that of the degree of caramelization which the sugar undergoes during the cooking process. The ordinary tests are valueless, for a sugar which analyzes 99.7 per cent pure sucrose may have present, in the other 0.3 per cent, minute quantities of various substances which hasten caramelization or which increase inversion at high temperatures. It is not necessary that the candy maker know the chemical composition of these impurities. His need is not for a complete chemical analysis, but for a quick way of telling the presence or absence of these deleterious traces, no matter what they may be chemically. Many things, which may be present in sugar in amounts of 0.02 per cent or less, can reduce the value of the sugar to him, by causing either high inversion, with subsequent stickiness, or excessive caramel formation, resulting in a dark-colored product. The surprising effect of such small quantities of "impurities" is shown admirably by the well-known "strengthening" and whitening effect of one part of soda per 100,000 parts of sugar, which is the same proportion as 0.001 per cent of soda.

Such a practical test as the candy maker desires has been in use in the sugar industry for some time. One form of this test has been described by Frederick W. Murphy in THE CANDY MANUFACTURER* for September, 1921. For convenience, the details of this test are repeated herewith, accompanied by photographs of the operation and of the results obtained with various sugars. It is a test that the candy maker himself can make in half an hour and from which he can derive his own conclusions without resource to a chemist. The test approximates the actual conditions used in making hard candy, and is one of the simplest and most reliable tests

*NOW THE MANUFACTURING CONFECTIONER.



Pouring the Syrup

of the quality of a sugar intended for such use. It is flexible as regards conditions and technic. Hence it is not necessary to follow the directions explicitly, so long as the test is always carried out in the same manner, with the same quantities of materials, and under the same conditions of heating, stirring, and so forth, down to the smallest detail. In other words, it is a comparison method. By developing a technic and sticking to it the results will be comparable, so that two testers, each using his own technic and scale for comparison, will rate the sugar the same, although the depth of color obtained by one with a particular sugar may not match that obtained by the other.

Apparatus for Sugar Test

The apparatus needed is simple. Obtain, or have made, a copper casserole of the following specifications and dimensions: The bowl of the casserole is beaten out of 1/16 inch stock. It is 4 9/16 inches in diameter at the top, 2¼ inches in diameter at the bottom, and 2 9/16 inches deep. The sides are fairly straight, slightly rounded toward the bottom. Riveted on one side is a handle made of a copper tube, slightly tapering toward the bowl, ⅞ inch in diameter at the larger, outer end, and about 2 inches long. To prevent burning the hands, an oak or ash handle is fitted into the copper sheath of such a length that the whole handle is about 7 inches long.

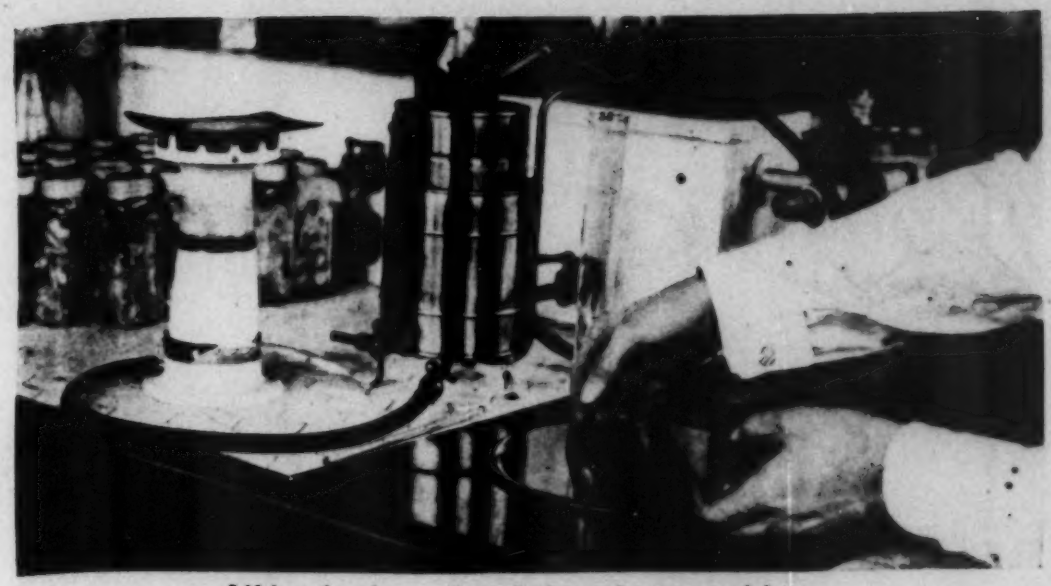
Heat is obtained from a Craddock burner, which may be obtained from any firm dealing in laboratory supplies. A gas pressure regulator is needed to insure a constant pressure of gas at the burner. The regulator is simply a small gasometer, having a gas chamber inside a water chamber. The gas entering the inner chamber causes it to rise and, by means of lever and valve, automatically shut off the flow of gas at any desired pressure, thus providing a fairly steady stream of gas. Some glass rods ¼ inch in diameter, some watch glasses 6 inches in diameter, a chemical thermometer, with a range from 40° to 400° F. (or its equivalent on the Centigrade scale), which has been tested for accuracy at 350° F., and a 100 cubic centimeter graduated cylinder will also be needed and can be readily and inexpensively obtained.

For pouring and cooling the specimen, a *polished* copper slab, 14 inches by 14 inches and ¼ inch thick, is used. No grease will be needed on this, as the candy may readily be lifted and removed from it if the polished surface is clean and dry.

The Test

Exactly one-half pound (227 grams) of sugar is placed in the casserole and exactly 90 cubic centimeters of distilled water poured over it. The casserole is then placed on the burner, with the flame so adjusted that the time required to bring the temperature of the sirup to 350° F. is between 21 and 25 minutes.

The sugar and water are constantly



Lifting the plaque of candy from the copper slab

stirred until the sugar has completely dissolved, and then the glass rod is removed. If the flame is properly regulated, the solution will boil in 5 to 5½ minutes from the time it was placed on the burner. As soon as the solution boils, a 6-inch watch glass is placed over the casserole to prevent the sugar from crystallizing as evaporation takes place. This is done instead of wiping the sides of the kettle, as is the general practice in boiling large batches. With some sugars the solution foams badly when it first begins to boil. If this happens to the extent that there is danger of its frothing over the sides of the casserole, the casserole may be lifted from the burner for a moment, when the foam will subside, and then cautiously replaced over the flame. After the excessive foaming is over, the solution will boil without danger of further overflowing and may be safely covered.

Exactly 15 minutes after the casserole was placed over the flame, the watch glass is removed and the boiling solution is then stirred constantly and thoroughly with the thermometer until the latter registers 350° F. (176.5° C.). When this temperature is reached, the sirup is poured immediately onto the clean, dry copper slab and the resulting candy is allowed to cool, when it may be lifted from the slab and examined.

If the test is conducted in a room in which the humidity is regulated to a constant amount, a comparison of the "strength" of the sugars used may be made by noting the lapse of time before crystallization starts in the transparent placques of candy; the shorter the time before crystallization starts, the "stronger" the sugar. But if the humidity varies widely, this test is subject to

(*Continued on page* 82)

Specimen of candy made by the method described from different white sugars

The Problem of Getting Uniformity of Color and Flavor in Candy

by Norman W. Kempf

Associate Technical Editor, The Manufacturing Confectioner

FOR years the Candy Industry has depended largely on the judgment of the candy maker for the addition of color and flavor to candy. Any method of measurement which depends on the guess of a human being, no matter how experienced he may be, is open to serious error and can hardly be expected to give uniform results. The importance of uniformity needs no emphasis, and this article will discuss some of the problems involved and suggest some ways of meeting them, to insure a more uniform and correct flavor in the candy produced.

A Practical Flavor Test

The first step in this direction is to standardize the flavoring materials used. Chemical analysis gives a valuable indication of the purity of the flavor, but does not always measure its strength. For this reason it is wise to establish a practical flavor test on all flavors entering the factory. We will suggest a procedure for peppermint oil which can be modified to include practically every flavor on your list.

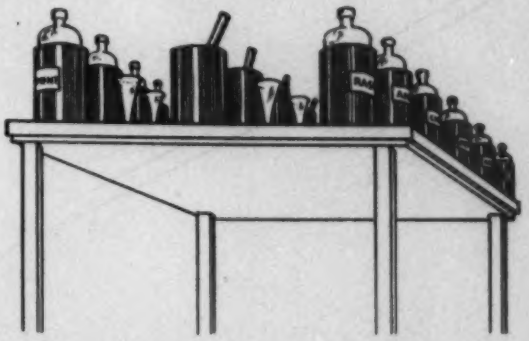
The sample on which the oil was bought can be taken as the standard. Ten drops of this oil are dissolved in five cubic centimeters of alcohol and the resulting solution is added to a quart of water. This dilutes the flavor sufficiently to permit intelligent comparison. Each delivery of oil can be checked against the standard by making the same dilution and comparing the taste with that of the standardized dilution. In this way any large differences between several deliveries of oil from the same or different suppliers can be detected simply and easily before the oil is used in flavoring candy.

Having determined on a standard of flavor and each lot of flavor tested to see that it matches the standard, the next step is to provide means for the addition of the correct amount to each batch of candy.

Flavoring the Batch

Where the flavor is in the form of essential oil or fluid extract, the solution of the problem is obvious. Liquids can be measured with reasonable accuracy and speed in glass graduates. Only a moderate amount of intelligence is required to fill a graduate to a mark, and any candy maker who is unwilling to take this slight extra trouble doesn't belong in a modern candy factory. In order to avoid the necessity of washing a graduate in general use it is important to provide a graduate for each flavor.

The system employed in the hard candy room of a large eastern manufacturer has worked out remarkably well, and is worthy of your careful consideration. A tea-wagon type of table, provided with large casters, is used as the flavor dispenser.



On top of this table there is nailed a row of empty coffee tins, each containing a bottle of Essential Oil, the tin being labeled in large letters with the name of the oil to be placed therein. In front of each tin the cover is nailed upside down, providing a convenient receptacle for the graduate. A 4-oz. graduate to be used with each flavor is kept in the cover while not in use.

Reduce Breakage of Graduates

The center of the table is fitted for a row of bottles containing color pastes. A diagram of the layout is shown in the drawing on opposite page. In order to reduce breakage and provide adequate labeling for the graduates, the glass is set in a concrete base contained in a candy jar top. The concrete absorbs the shock when the graduate is crashed down on a steel

cooler, and provides a convenient place to set in large metal letters denoting the flavor to be used in the graduate. The efficacy of this simple expedient can be judged by this firm's experience. A weekly breakage of three to four graduates has been reduced to a yearly breakage of two.

The importance of labeling is evident, as an accidental mixture of an oil with the residue of another left in from a former use of the graduate will ruin the flavor and nullify all our efforts at standardization. Since this system has been installed complaints on flavors in hard candy have practically disappeared.

When the flavor used is in powdered form, uniformity can also be easily obtained by weighing the powder. If uniform sized batches are made, the candy maker's time can be saved by training a boy to weigh out portions of the powder in glassine or wax paper bags, so that all the candy maker has to do is empty the contents of the bag into the batch. This system also works well for the addition of citric or tartaric acids in hard candy work.

In flavoring creams and other low cooked candies it is often desirable to use an essential oil in the form of an emulsion. This introduces a new problem in measurement. Emulsions are generally so thick that the use of the ordinary graduate is inaccurate. Too large a proportion of the volume measured sticks to the glass sides of the graduate and is not utilized. Attempts at weighing emulsions also run into difficulties, and are too messy for satisfactory use. A rather novel solution of the problem is to employ a surgeon's syringe. Large syringes are obtainable, graduated in cubic centimeters. Care must be observed in the selection of a syringe to avoid types with rubber washers. The essential oil of the emulsion will attack the rubber and render it useless. An excellent design is one in which a nickeled plunger is machined to fit closely in a glass cylinder, the interior of which has been ground true. Graduations on the glass are an aid to accurate measurement and metal guards tend to prevent breakage. Such a device helps to take the guesswork out of the use of this valuable vehicle for essential oils.

Handling of Colors

The dilution test mentioned above can be adapted to standardize the various colors used by the confectioner. A dilute solution of the color chosen as standard is compared in a Nessler tube with a solution of equal strength of each lot of color received. In this way variation of shade or strength of color can be detected more readily than by comparison in concentrated form.

In flavoring creams and other low-cooked goods, where the addition of an ounce or so of water does not interfere with the consistency of the batch, the simplest method to introduce the proper amount of color is to utilize the glass graduate. The colors are purchased in dry form and made into stock solutions in water. The candy maker measures a predetermined amount of the stock solution in a graduate and uses this to color the batch. It is very gratifying to see each batch of creams come through with exactly the same color.

In Hard Candy

Hard candy, however, presents a special problem. The introduction of a water solution of color into a batch of hard candy would have disastrous results, and countless efforts to find a better medium or vehicle for color have only succeeded in demonstrating the superiority of the confectioner's color paste for this purpose. But if we must use paste, how are we to provide the candy maker with a practical

Graduates Not in Use

and certain means of getting the same amount in each batch? Much research work has been done on this subject.

Several years ago an extended investigation was made through the hearty cooperation of a large manufacturer of color pastes with the research department of a candy manufacturer. Many interesting ideas were developed with varying degrees of success. For example, color pastes were put up in tin tubes, like shaving cream or tooth paste, with the object of having the candy maker squeeze out an inch or so as required.

The length of mass was to provide a medium of measurement. So many difficulties were encountered that the method was finally abandoned. The pastes would harden in the tubes so that it was almost impossible to squeeze them out without bursting the tube.

In another interesting trial the paste was rolled into narrow cylinders contained in wax paper, in the hope that the candy maker could cut off a measured amount of the cylinder. The results to date of all this work have not been entirely satisfactory and the firm in question is still using color pastes in jars. The candy maker is provided with a round mixing stick having a flat end. He is able to judge approximately the amount of color taken up by the end and uses the stick to mix it in the batch. Much work must still be done before a satisfactory solution of this problem is advanced.

Let's Hear from Others

The writer offers these suggestions in the hope that they start an open discussion of this important problem and possibly bring to light any work done by others along the same lines. Comments and criticisms, favorable or otherwise, will be appreciated and may lead to genuine improvements in methods of handling colors and flavors.

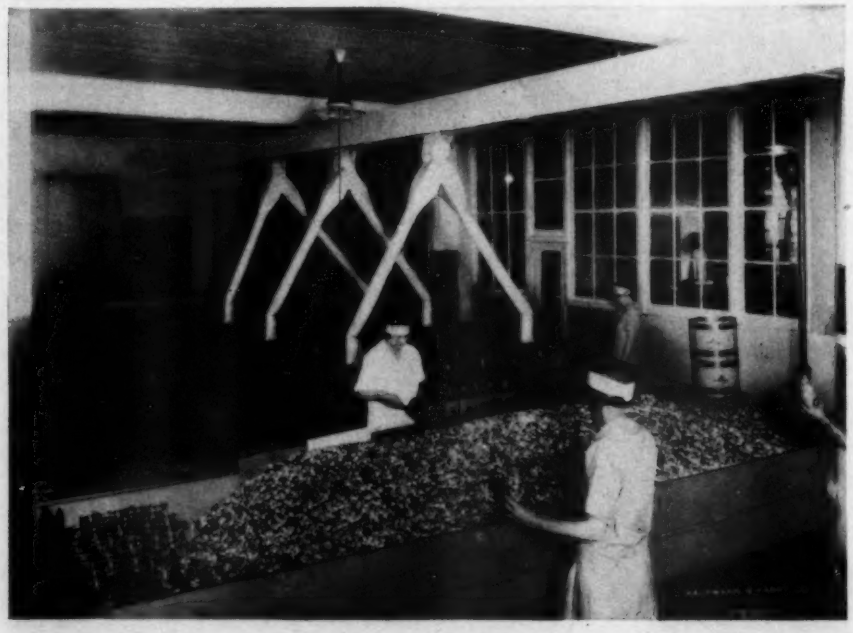


Photo courtesy Thinshell Candies, Inc., Chicago

Hard candy packing department properly "conditioned." Note the taps in the main duct which conveys dry, cool air from the dehumidifying apparatus, located in opposite corner of room, to delivery belt of the automatic plastic machines, in background.

Monthly Digest of Current Technical Literature

of direct or indirect relationship to the confectionery industry

Glucose Standard Revised. A revised and amended definition and standard for glucose has just been adopted by the Secretary of Agriculture, the text of which reads as follows: "Glucose, mixing glucose, confectioner's glucose, is a thick, sirupy, colorless product made by incompletely hydrolyzing starch, or a starch-containing substance, and decolorizing and evaporating the product. It contains on a basis of 41 degrees Baumé not more than one per cent of ash, consisting chiefly of chlorides and sulphates."

A Method for Differentiating Between Natural and Artificial Honey. E. Troje; Z. Ver. deut. Zucker-Ind. 75, 635-72 (1925). A method for the determination of hydroxmethylfurfuraldehyde and a discussion of Fiehe's color reaction (with resorcinol) for invert sugar, and other methods of detecting artificial honey and the adulteration of honey.

Modification of Pectins During Cooking. A Mehlitz, Chem. der Zelle u. Gewebe 12, 353-61 (1926); Chimie et industrie 16, 301 (1926). Sweetened pectin solutions are much more stable than unsweetened solutions, caused by the decrease in acidity due to the addition of sugar; transformation of the pectin is affected by the temperature as well as the acidity.

Preserving Fruits. P. W. Barclay. U. S. Patent 1, 601, 101. A process for preserving raw fruits in cane syrup, together with details of an apparatus for the manufacture of same.

Sugar in Presence of Acids, Increases in Sweetness. Science No. 1649, Vol. LXIV, 1926. Experiments conducted by the biochemical laboratory of the Southern Branch of the University of California indicate that within an hour and a half, practically all the cane sugar in lemonade disappears, and it displaced by the much sweeter mixture of glucose and levulose.

U. S. May Prohibit Use of Certain Flavoring Extracts. The U. S. Department of Agriculture contemplates prohibiting the use of mineral oil in non-alcoholic flavorings, thereby reversing their decision of 1923 whereunder the use of mineral oil in non-alcoholic flavorings was permitted. If the present plans of these officials are carried through, there will never again be an opportunity for ingenious minds to construct a formula for a substitute for oil of peppermint, should that natural flavoring become as costly as it was last year.

Food and Drugs Headquarters to Be Moved. Washington reports state that a plan is under consideration whereby the Food and Drugs Administration is to be separated from the Bureau of Chemistry, Department of Agriculture, and placed in charge of Walter G. Campbell, director of regulatory work in the department. This would leave Dr. Charles A. Browne, present head of the bureau, in charge of its research work.

Determination of Fat in Cacao and Chocolate. J. Ruffy, Mitt. Lebensm. Hyg. 17, 75-7 (1926). The method described is a slight modification of the one used for milk, cheese and meat; the results obtained check very closely with the official method now in use.

Adulteration of Oil of Lime. E. J. Parry. Parfumerie moderne 19, 97-8 (1926). Terpenes, from the preparation of terpenless oil of limes, is being used to an increasing extent in the adulteration of distilled oil of lime. Results are given of fractional distillation tests and show numerous samples to be undoubtedly adulterated with large quantities of terpenes.

"Oil of Japanese Mint" Not Peppermint. E. M. Holmes. Chemist and Druggist 103, 504-5. The term "oil of Japanese mint" applied to a low priced Japanese oil is misleading, as the oil is not produced from the true mint. It is produced from a variety of M. arvensis L., which is not recognized by the British Phar. as a source of peppermint oil.

An Antirachitic Orange Confection. H. L. Maslow, D. H. Shelling and Benjamin Kramer. Bulletin Johns-Hopkins Hosp. 39, 56-61 (1926). Preliminary experiments show that antirachitic properties can be imparted to orange juice by irradiation with the mercury vapor quartz lamp. By feeding such orange juice to rachitic rats healing was demonstrated in from five to fifteen days. Such irradiated orange juice, mixed with a gelatine or an agar agar base, would produce a delightfully palatable confection possessing valuable medicinal properties.

Determination of Coconut Oil in Chocolate Fondants. J. Lukas. Chem. Listy 19, 397-399. Most so-called chocolate fondants (iced chocolate) contain coconut oil whose low melting point causes them to melt in the mouth, producing a cooling effect. Coconut oil, so used, must have no appreciable odor or taste. The oil can be detected by means of the ethyl ester formation. The ethyl ester No. of coconut oil is 80, that of cocao butter is 4.

Satin Finish Hard Candy

Some high spots in the manufacture of satin finish goods, by one of the craft:

Peter H. Schlueter

Everybody knows Pete Schlueter, and there are quite a few who remember when Pete was running a booming retail candy shop on Wilson Avenue, Chicago, where he played around with all kinds of machinery and developed the Schlueter process patent of cooking hard candy which is now known as the Simplex method. We understand this was the first retail candy store and shop which was dehumidified by refrigeration. Some of the pioneers will remember Pete when he made stick candy for O. H. Peckham on Main street, St. Louis, in the '80s and later was protegé of Jos. Murphy, the globe trotter, the grand old man of the candy craft.

THE selection of materials used in making satin finish candy must be of a quality that will produce a high gloss, boil white and transparent, and will stand the necessary high temperature required to cook to the finished degree. Highly refined cane sugars of a medium crystal are the best to use as they require a minimum amount of water to dissolve. Coarse sugars require a large amount of water, which will cause the batch to cook yellow. No definite amount of water can be stated as sugars vary in hardness, enough must be used to dissolve all the crystals.

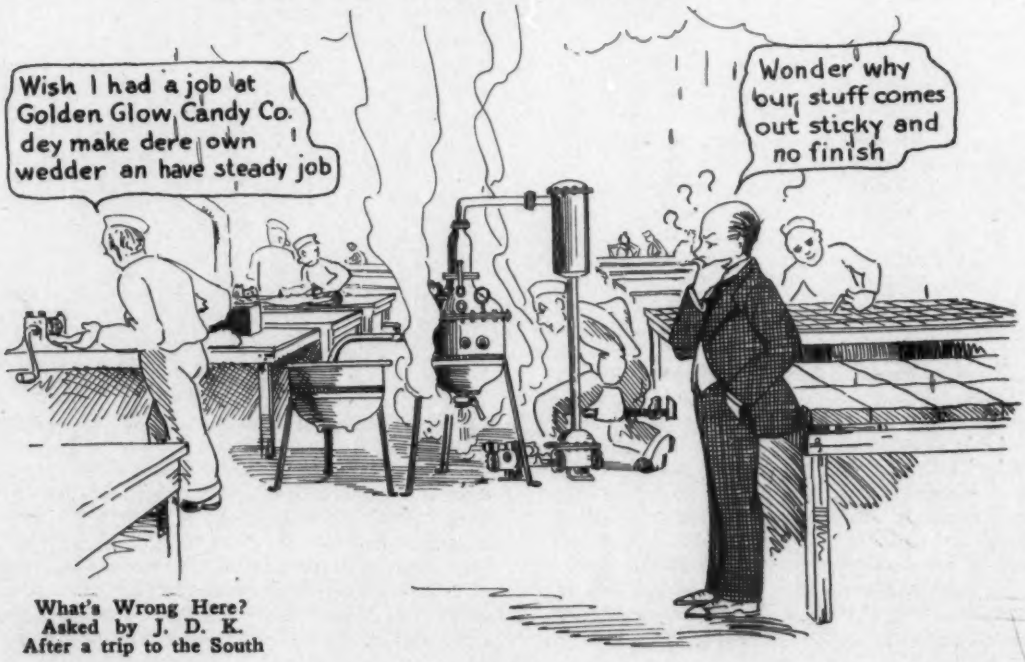
When using steam jacket kettles the modern way is to put in the required amount of water, bring to a boil, then put in the sugar, stir well until all is boiling again, and note if any undissolved sugar crystals can be seen on the paddle. If it is clear—then the right amount of water has been used. Now add the corn syrup and boil to the required degree to finish under vacuum. By this method the least amount of water required to evaporate out. A 40° or 42° Beaume Corn Syrup is the best to use as it mixes in readily, cooks well in most vacuum systems.

A clear white corn syrup must be used to produce white candy; yellow corn syrup will not do it.

Keep Steam Out of the Department

A hinged metal cover should be over the kettle, the one end connected with a flue or pipe to carry off the steam vapor to the outside, otherwise the steam which carries some sugar and corn syrup will settle on the ceiling, walls and machinery, causing endless trouble to the candy maker by

Why Satin Finish Goods Get a Calico Gloss (No. 1)

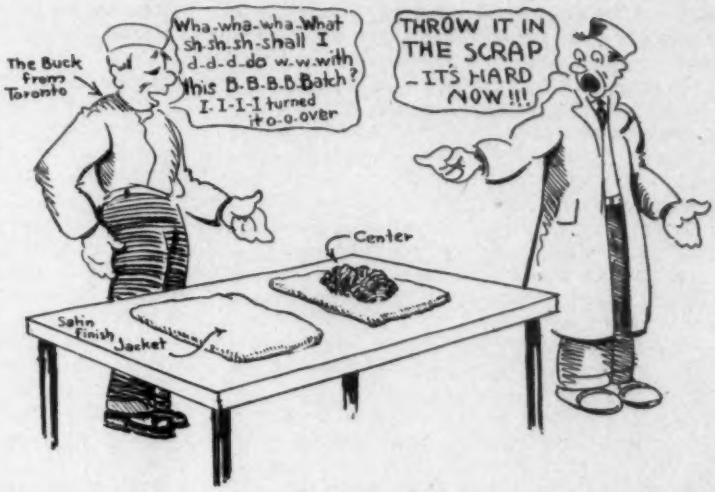


What's Wrong Here? Asked by J. D. K. After a trip to the South

sticking to rollers, cutters and plastic machinery while putting the batches through.

If finished candy is exposed to this steam it will also spoil the lustre and make the same sticky.

Manufacturers usually put up their batch consisting of 25% corn syrup—75% sugar; 30% corn syrup—70% sugar; 35% corn syrup—65% sugar. A greater amount of corn syrup is often used to counteract chemical properties in the water, available in certain sections of the country, which causes batches to cook gummy, dry and lusterless, and have a flaky appearance; a greater percentage of corn syrup seems to remedy this condition. Of course cost is another factor affecting the percentage of corn syrup used. No methods or systems of vacuum cooking will be explained here as each method would require an article in itself. However all vacuum systems have their good features and special applications and get substantially the same desired results —some more efficiently than others—of reducing the moisture content and inversion to a minimum and bringing out a fine satin finish.



Where it is necessary to transfer your batches from the cooker to another kettle or pan to pour on the slab, it is advisable to have these vessels made of heavy metal, such as copper, galvanized iron or aluminum and be capable of holding 100 pound batches. As the batches must readily slip out it is important that they should be oiled with odorless wax, or a composition one-half cocoa butter and one-half odorless beeswax. This should be rubbed in the pouring vessel after each batch while the vessel is warm. A thin film will form and prevent the batch from sticking to the vessel. The use of thin oil, such as slab oil and flour is not practical as it mixes in the batches causing cloudy goods and destroys the lustre and sometimes producers odors in finished candy not highly desirable to say the least.

The batch should be poured on a highly polished steel water slab—just cool—not cold. A cold slab will cause the batch to stick to slab and freeze on bottom too rapidly, and crack and get lumpy. The proper way is to let the batch cool a minute or two, then take the shears and cut in sections, lift up and turn over so that the top is on the bottom to cool. When the sections are sufficiently cooled, fold up and put all together, and double up several times so as to distribute the heat. This will make an even texture in the batch and bring out a fine satin finish.

Now cut off pieces to mix in colors, also cut off enough clear candy to skin the batch (about 4 lbs. to 5 lbs. for a 65 lb. batch) and lay on the hot slab which is covered with leather. The batch should be put on the pulling machine and the flavor added, or it may be stirred in the pouring kettle. Proceed with the pulling until a fine satin finish appears. This requires study and experience on the candy maker's part. Too little pulling will produce a glassy effect and too much a flaky appearance. The right amount of pulling can only be determined when fine minute specks begin to appear in the batch. Pulling should then be stopped, the batch taken off and folded up and pressed down several times to remove the air to bring out the finish.

Now spread out the clear piece over the batch and fold it around. Press the batch out and fold up again so the clear piece has been worked around at least three times. Sometimes twice is enough. The batch is now ready to be striped or rolled out, and the center put in.

If a center is put in, it should be hot enough to burn the hand when felt. For some work it is advisable to put two jackets over centers. The batch should be rolled on a canvas stretcher and transferred to the batch roller. Picking up the batch and carrying it in the arms is bad practice, as it distorts the jacket and stripes and causes thin places and the center will break out in time on the batch roller.

After the batch is pulled the operation of putting in the center or striping should be done on a leather covered hot slab. This is necessary to maintain an even temperature in the batch, not cooling or heating any more, just enough heat to keep the batch pliable, and easy to work until it is ready for the batch roller is an important feature in making fine satin finish work.

If the batch is chilled and reheated during this operation it will lose the gloss, and it cannot be produced again. It is also well to guard against drafts or air currents. A room of 70 degrees to 85 degrees is all that is required.

Most types of batch rollers are provided with covers, which distribute the heat all over the batch, so as to temper it evenly, as batch now gradually begins to assume the shape of a bottle with a long tapering neck. The next operation is to rub the palm of the glove on the tapering neck so as to get a very small butt. This is now pulled off and

placed on the rear end of batch if it is solid goods. If filling is used the butt is placed on the warm leather covered slab and covered up to be worked in the next batch.

The batch is now ready to spin to the cutter or machine that is to form the pieces. At this stage the spinner should use a pair of *clean* gloves. The gloves that are used in mixing stripes or working in acid and flavor should not be used in spinning, as they only make the batch sticky causing it to stick to the forming machine.

Rubbing an odorless wax on the batch will facilitate spinning by causing the gloves to slip easy in spinning.

Wax will not bring out the gloss. The gloss is in the batch and can only be brought out at this stage by keeping the same in a plastic state, soft enough to spin easy. A batch which is chilled or stiff, or one which is too soft will not produce the high gloss so much desired. This is the stage of candy making where the spinner shows his skill and artistic abilities by spinning a batch from start to finish without losing the high gloss.

The candy is now fed into the cutter or forming machine. If filling is in the batch the ends should be squeezed flat, then cut off to prevent any filling from coming in contact with the cutter, dies or rollers as it smears up the machine and is the cause of a lot of grief.

When the spun candy comes out of the forms or dies a stream of cool air should strike the shapes just as they emerge from the dies. This chills the pieces and preserves the forms just as the dies imprint them.

A conveyor twenty feet to thirty feet long is usually sufficient to cool the goods so that they may be spread on a metal table or screen for complete cooling, which must be continued until there remains only a perceptible amount of heat in the pieces. They are then ready for packing or mixing in the bins.

To cool satin finish candy in a 20 or 30 foot conveyor requires a powerful blast of cool air, preferably dehumidified, of 60 to 70 degrees fahrenheit, which is available in most modern candy plants of the day. No candy plant, especially hard candy departments, can compete successfully without air conditioning equipment to keep the desired atmospheric conditions inside the factory regardless of weather outside.

If you have no dehumidifying system, then draw the air from the outside, which is very often cooler and drier than factory air charged with heat and steam.

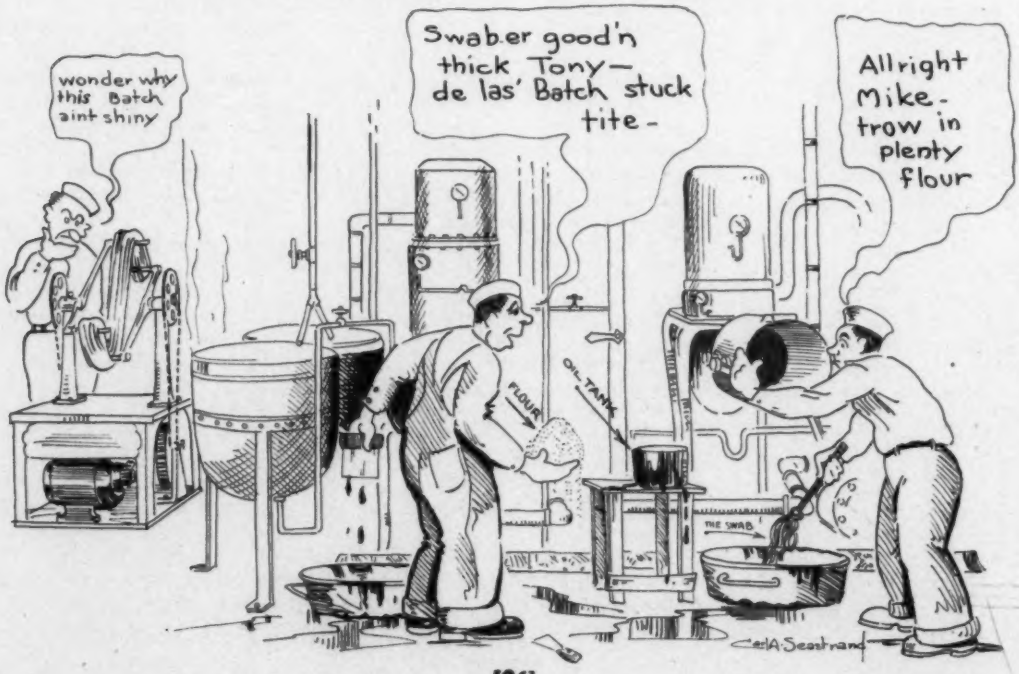
Another scheme is to use air from the chocolate cooling room, which is refrigerated by a cooling system, if it is not too far from the hard candy department.

Satin finish candy must be packed in air tight containers such as glass and metal of which there are different types to be had. Humid atmosphere will destroy the luster and finish in a few hours, so display jars and individual glass jars are made with air tight covers—some with an air drying chemical in the cover and are very popular with store keepers.

The production and sale of satin finish hard candies has run into enormous volume the last few years. This is due to advanced methods in cooking processes and development of machinery which has made possible a high production of quality goods at a lower cost than in previous years. Proper engineering—floor layouts permit-

(*Continued on page* 82)

Why Satin Finish Goods Get a Calico Gloss (No. 2)



(*Continued from page 9*)

time of the year * * * when the first substantial arrivals reached consuming centers, they *simply evaporated in a somewhat uncanny fashion.*"

Now no one either inside or outside of the coating trade will believe that these huge quantities of cocoa were immediately metamorphosed into chocolate bars, coatings and distributed among the consuming public. They are the "invisibles"; the reserves frantically gathered in and hoarded in times of stress which exert such a mysterious influence on the market when the pendulum commences to swing the other way.

Why the Price of Cacao Continues to Soar

There are apparently no stocks in New York warehouses, to speak of. The Combine shows no inclination to sell, even to dealers. The latter, unable to secure stocks of cocoa with which to fulfill their commitments, are beginning to wonder if they haven't been double-crossed. And as for the manufacturer, everybody is too busy speculating on the Exchange to even know that he exists. As the corner tightens and one by one the reluctant manufacturers are forced into the market for belated supplies, the price continues to soar.

What became of all the interest until recently displayed by the Big Four (Chocolate Manufacturers) in demanding a government investigation and a breaking up of the corner? Having plunged with the tide for better or for worse, perhaps they feel that this may be their golden opportunity to rid the ranks of less provident competitors. The small fellow must fight his battle alone!

The Weakness of the Defense of the Cocoa Exchange

So it is that with especial timeliness we approach Wessels' defense of the Cocoa Exchange. Is our present distress predicated upon the existence and activities of the Cocoa Exchange? Has it served its purpose as a stabilizer of the market, lessened the hazards of trade and offered "price protection" to the manufacturer?

In our next issue we will consider the letter to us from Wessels, Kulenkampff & Co. of March 4th, 1926, in the light of *faits accomplis.*

Reproduction of advertisement which appeared in Boston newspapers last month.

The motive in running this copy was to give some advance cooperation on the coming N. C. A. National advertising and educational campaign.

This is an illustration of how local groups can support the National campaign and at the same time focus its influence on local manufacturers' products.

Analysis of Quality of Hard Candy on the New York Market

An impartial analysis of several jars of hard candy purchased at retail in New York City

by The CANDY CRITIC

Lot No. 1. Mints. 5 oz. retail 40c.
Container: Round glass jar, screw cap, inner wax disc, set in paraffin.
General appearance: Excellent.
Candy:
Gloss: Excellent. *General workmanship*: Good.
Striping: Uniformly good.
Flavor: Delicate and pleasing, but rather weak.

Lot No. 2. Assortment. 6 oz. retail 40c.
Container: Same as No. 1.
General appearance: Excellent.
Candy:
Gloss: Good. *Workmanship*: Good.
Flavors:
Lemon: Very weak (no acid).
Peppermint: Weak.
Anise, Cassia and Sassafras: Very good.
White: Slight flavor of Cassia; no Vanilla.

Lot No. 3. Mints (imported). 4 oz. retail 23c.
Container: Oval lithographed can, friction top.
General appearance: Excellent.
Candy: Individual pieces of molasses mints wrapped in wax paper.
Completely grained and sticks to wax paper.
Workmanship: Fair.
Flavor: Fair (Peppermint oil used was inferior to good grade of American oil).

Lot No. 4. Mints. 7 oz. retail 39c.
Container: Squat square glass jar, screw top waxed on.
General appearance: Excellent.
Candy:
Gloss: Excellent.
Striping: Not uniform.
Workmanship: Good.
Flavor: Good.

Lot No. 5. South Fruit Balls. 7 oz. retail 40c.
Container: Round glass jar, screw top, inner waxed discs set in paraffin.
General appearance: Fair.
Candy:
Gloss: Good. *Colors*: Good.
Workmanship: Very poor machine work.
Assortment: Poor (90% yellow and red).
Flavors: Lime: Good. Orange: Fair. Lemon: Weak. Red: Very weak and indefinite.

Lot No. 6. Asst. Barley Sugar (imported). 7 oz. retail 39c.
Container: Square glass jar, screw top waxed on. (Labeled: "Pure Fruit Flavors.")
General appearance: Good.
Candy:
Gloss: Good.
Workmanship: Good.
Flavors: Raspberry: Fair. Lime: Good. Orange: Very poor.

Lot No. 7. Molasses Peppermints. 6 oz., 40c.
Container: Round glass jar, screw cover, inner disc set in paraffin.
General appearance: Good.
Candy:
Workmanship: Good.
Flavor: Good.

Lot No. 8. Mixture. 1 lb., 60c.
Container: Bellied oval glass jar, screw cover, inner disc set in paraffin.
General appearance: Excellent.
Candy:
Gloss: Good.
Colors: Good.
Workmanship: Good.
Flavors: All good except lemon, which was too strong.

Lot No. 9. Fruit Balls. 5 oz., 25c.
Container: Round glass jar, screw top, not waxed.
General appearance: Good.
Candy:
Gloss: Good. *Colors*: Good. *Workmanship*: Good.
Flavors: Orange: Excellent. Lime: Good. Lemon: Too strong. Raspberry: Good.

Lot No. 10. Mixture. 6 oz., 39c.
Container: Bellied glass jar, screw top, not waxed.
General appearance: Fair.
Candy:
Gloss: Fair. *Colors*: Good. *Workmanship*: Fair.
Flavors: Lime, Lemon, Cassia and Sassafras: Good. Red: No flavor discernible. Filled goods: Weak flavors in jackets.

Lot No. 11. Mixture. 6 oz., 40c.
Container: Round glass jar, screw top, inner disc set in paraffin.
General appearance: Good.

Candy:
Gloss: Good. *Colors*: Good. *Workmanship*: Excellent.
Flavors: Vanilla, Peppermint, Lime, Strawberry and Anise: Good. Orange: Weak. Yellow pieces: No flavor.

Lot No. 12. Sticks. 6 oz., 40c.
Container: As in No. 11.
General appearance: Fair.
Candy:
Gloss: Fair. *Workmanship*: Poor. *Colors*: Good.
Flavors: Peppermint: Good. Wintergreen: Good. Yellow pieces: No flavor.

Lot No. 13. Asst. Hard Candy. No weight specified. 60c.
Container: Round glass jar, screw top, inner disc set in paraffin.
General appearance: Fair.
Candy:
Gloss: Fair. *Colors*: Good. *Workmanship*: Not uniform.
Flavors: Lemon: Weak. Red: No flavor. Peppermint, Lime, Anise and Sassafras: Good.
Assortment: Good.

Lot No. 14. Assortment. 5½ oz., 25c.
Container: Round bellied glass jar, screw top, not waxed.
General appearance: Good.
Candy:
Gloss: Good.
Assortment: Poor (90% orange and lemon)
Workmanship: Good.
Flavors: Orange: Fair. Lemon: Weak. Lime: Good.

Lot No. 15. Filled Goods (assorted). 4 oz., 25c
Container: Round glass jar, screw cover, not waxed.
General appearance: Good.
Candy:
Gloss: Good. *Workmanship*: Excellent. *Flavors*: All good.

Conclusions on the Above Analysis of Hard Candy

THE examination recorded above shows a very healthy condition in the manufacture of hard candy. The workmanship of most of the candy was excellent, indicating that our candy makers know their jobs and take pride in doing them well. The gloss was generally excellent, proving that the manufacturers provided ideal atmospheric conditions in their workshops.

A few criticisms were made on flavoring. None of the domestic hard candies exhibited flavors reeking of the imitation esters, but there does seem to be a tendency in some cases to underflavor the goods. We believe that flavor is the heart of hard candy—without this essential element, one might as well chew on a lump of block sugar. For this reason, a tendency to economize on amount of flavor used is to be deplored. The customer is entitled to know what flavor of hard candy he is eating and should not be made to guess what the manufacturer intended it to be.

This condition was particularly noticeable on some of the red pieces. It was impossible to decide whether they had been flavored with raspberry, strawberry, cherry or what have you? The presence of the red color indicated that some red fruit was to be represented. The psychological effect of color is remarkable. The public has become accustomed to associating certain colors or combinations of color with definite flavors. For example, white with thin red stripes means peppermint to the average person, and if he were to find a yellow piece of candy flavored with peppermint he would probably decide the flavor was rotten or artificial.

A similar condition exists throughout the line, and for this reason it is highly desirable for the manufacturer to stick to the conventional colors. The one instance recorded, where a white piece (ordinarily taken to be vanilla) was flavored with cassia, might have been an accident. Perhaps the candy maker had just used the measuring glass for oil of cassia and poured in the vanilla extract without washing it out. Such apparently harmless bits of carelessness sometimes produce unlooked for results.

Some improvements could be made in diversifying assortments. Some producers apparently believe that nine-tenths of one flavor with the other one-tenth made up of a few more, constitutes an assortment. This goes well if the customer happens to prefer the preponderant flavor, but it might happen that his favorite is in the minority. It is far better to equalize the amounts of each flavor—thus meeting with the average taste.

The few samples of imported candy picked up by our reporter did not show up so well against the domestic article. In the matter of flavorings, the American-made candy was decidedly superior. If the buying public uses quality as its criterion rather than the phrase "imported from," the American maker of hard candy has nothing to fear from English competition.

DIARY of HARD BOILED HANK

SINCE friend wife took the notion that I was too sweet and hardboiled to live with, and consequently have nobody to spout my troubles to, I have taken unto myself a diary as a shock absorber, so here goes.

January 6th.—A new hand came in today who is keen on using up scrap. He's certainly getting low cost production by spinning his batches to the last possible piece consistent with good quality; it only means a little more extra effort and interest on the part of us candy makers. But it's a hell of a sugar head who uses up fifteen pounds of scrap in a sixty pound batch and spoils the whole lot! I offer him as prize demonstrator of "Penny wise and pound foolish."

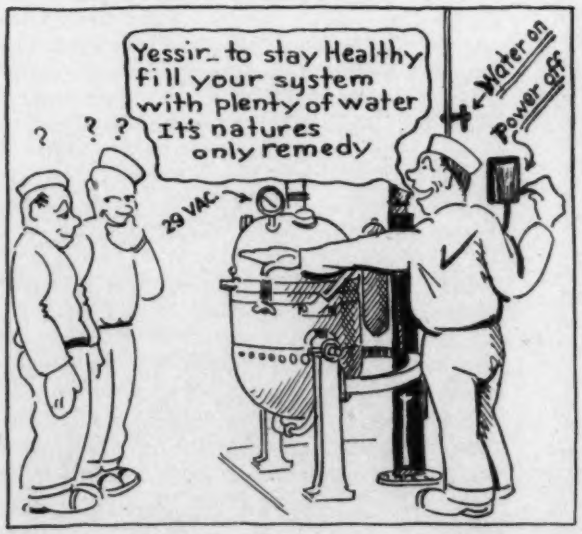
January 7th.—Pete, an old time candy wizzard came into the plant to supervise the first day's output of a new vacuum cooker. He's so dry humored that it's the greatest contradition in nature to see him perform at the speak-easy around the corner. One of the helpers was chewing the fat with the porter and neglecting his batch, which was on the slab, so Pete went over and spun this yarn about a buck from Canada who tried to break in making plastic work. His foreman told him to turn over the batch. The poor guy stuttered' "WWWWhat sh-sh-sh-shall I d-d-d-d-do with it n-n-n-n-n-now?" Eventually he got it out. The foreman yelled back: "Throw it into the scrap, it's hard now."

January 10th.—Mike is our prize hair-brained, absent minded cook on the vacuum. He told us boys that the only healthy plan was to drink plenty of water. "Fill your system up with water —it's nature's remedy for all ills," is his constant cry when anyone is feeling sort o' rotten and off feed.

Later in the day he cooked up a 125-lb. batch and turned off the vacuum pump before turning off the water, and of course flooded the batch full of water. That health crank got some razzing by the whole bunch. The foreman had a fit. We added a low syrup to the batch and used it in the steam pans to make cokernut center for buttercups. But Mike was given a spell in the packing department to take his mind off the water system and as an aid to health in working hours.

January 11th.—Did a hard day's work, as the

Mike—the Absent-Minded Vac



foreman was told by the super that a special order had to be got out and time was short, so that we were kept going full blast without a moment to rest between batches. The foreman was the relief man that day and alternately relieved spinners and the men setting up the batches. We're a willing bunch, if I do say it, and our foreman works together with us, so we're a happy crew (think I ought to get a raise for that). Incidentally, the porter told me that when I left tonight that the toilet room was singularly clear of cigarette butts, which proves that candy can be made without a Camel between batches. I noticed that the foreman looked less like an alderman after that day's work.

January 12th.—One of the draftsmen employed in the machine shop has the inventing bug badly and came around today to ask the boys what suggestions they could make. Could they think of anything made by hand now in the hard candy game which there is not a machine for and which it might be possible for a brainy man to invent? He got some ideas that should make his fortune. One was for overalls that would always stay size 44 and not develop into knee pants after two visits to the laundry. Another patiently explained the logical processes of putting elephants and roosters into cut rock and very plausibly described how a simple machine could do that work. The draftsman, I believe, is English. He went away thanking the boys for their helpful suggestions. He said they had made him think a lot and he would try to work out these ideas. More power to him.

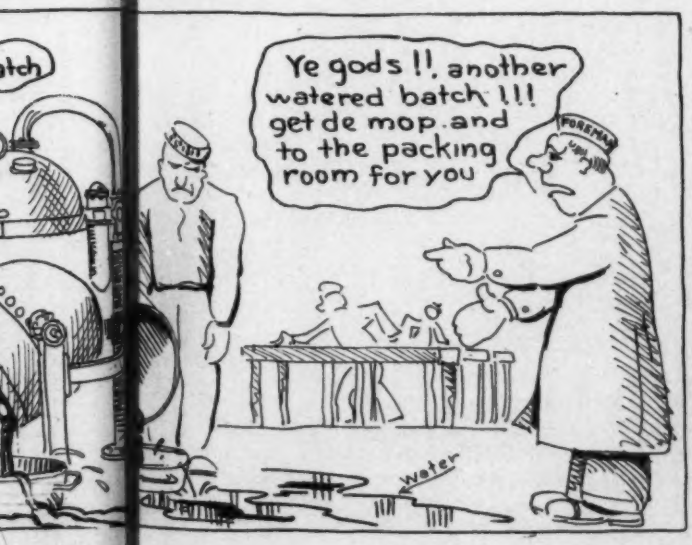
Got a new helper in today who is real willing and anxious to work. Reminded myself of the hard time I passed through as a helper when my candy maker was jealous of his practical knowledge. This helper is real anxious to give satisfaction—too anxious—as when I called for center (we were making chocolate filled jack straws) he filled the carrying pan with chocolate and rushed over to the slab where I had the inside cover and the outside cover ready laid out, and unloaded the chocolate on the outside cover instead of the inside. However, all's well that ends well, and I guess he won't make the same mistake twice if he expects to be healthy and work with me.

He asked to be given a chance to learn spinning so put him on spinning butter cups. Got a dandy lot of huge buttercups, baby buttercups and all manner of sized buttercups. Guess he's not ripe for a spinner yet, but he'll learn in time. If he don't develop into a regular candy maker it won't be my fault.

January 13th.—Darn the kitchen plumber who masquerades under the title of candy engineer in the shop. Went over to the cooker and happened to rest my hand on an innocent looking pipe. The next thing the shop knew, was a wild looking candy maker rushing over to the slab oil tub and sticking my hand into it. The kitchen plumber became an efficient engineer when I had an "intimate talk" with him, and those steam pipes were soon nicely covered with thick asbestos. And my hands are nicely covered with thick bandages. I believe there's two of 'em born every minute.

January 14th.—Had a friendly argument with daggers with the new machine shop man who objected (for no reason that I could see) to being called a bicycle mechanic. He then started to tell me that, in the Scientific American he had read that the amount of brain activity is measused by the amount of saliva that the human body produces. That, he said, is the reason why we candy makers use a damp cloth to damper our stripes when we set up our batches. He ought to see Plastic Kelly, our champion plug shooter.

Minded Vac Cook, Recommends the Water Cure



The Hard Candy Business

Its Present and Future

Interviews with manufacturers, jobbers and retailers in different zones of United States on the hard candy situation

From the Pacific Coast

by Russell B. Tripp, *Editor, Western Confectioner, written exclusively for this issue of The Manufacturing Confectioner*

PACIFIC Coast manufacturers of hard candies, for the most part, shake their heads discouragedly as they figure up their business in this line for the recent holiday season, but look forward optimistically to better conditions in 1927.

There was just as much in the way of hard candies made and sold and consumed this season as ordinarily, most of the larger manufacturers agree, but competitive price cutting, general throughout the coast territory, brought the market down to a point where nobody made any money and where some firms lost heavily. A few of the manufacturers believe the consumption of hard candies fell off this season and show reports from jobbers and dealers who complain of being left with large carry-over stocks.

The price situation on the coast this year was deplorable—and everybody complains of the "other fellow" or the rest of the trade in general The Southern California manufacturers would fasten the blame on those of the San Francisco district and the San Francisco folk would point accusing fingers at the "Northwestern crowd." Whoever started it, the fact remains that everybody went as far as he dares, consistent with his own peculiar conditions, and some were entirely too daring for their own or the industry's good.

Prices on holiday hard candies were quoted at the opening of the season, along in September, on a basis of $5.70 sugar, but long before Christmas everybody was filling orders with candies made with $6.40 sugar. Even on late orders prices were only slightly raised and apparently those who took the last-minute business did it at the old price.

A few of the ultra-conservative firms refused to take part in the general scramble to give away their goods—and did hardly any holiday business at all, in comparison with that of former years. A couple of large specialty manufacturers declared their holiday business this year, due to their refusal to cut below a safe limit, was the smallest since war times.

The hard candy market is now experiencing its usual post-holiday-season slump and there is practically no demand for this class of goods. Dealers are still pushing leftover stocks for a clean-up, but the consuming public seems to have been surfeited.

Peculiarly enough, little complaint has been heard from jobbers and dealers about the quality of the goods they received, even at the ruinous prices. Doubtless most of the manufacturers had to shave quality as far as they dared in their attempt to make ends meet and keep abreast of their competitors' prices, but there has been no general howl from dealers or consumers.

Demand for high-class hard goods, particularly the filled-center varieties, continues good practically throughout the year in the Pacific Coast territory but, except for the holiday trade, business in plain and broken mix candies is generally sporadic. The Woolworth and other chain store systems are the principal distributors during most of the year and handle most of the coast output through periodical drives.

All the larger manufacturers of confectionery in all lines are looking to 1927 to improve conditions appreciably. Recent increases in prices on practically all raw materials will compel everybody to revise their price lists upward and in particular are expected to force many of the smaller manufacturers to figure their costs more carefully. The slight increase in retail price, it is believed, will not be noticeable to the consumer—if retail prices have to be increased at all—but the increases necessary in the wholesale lists will mean much to everybody else in the trade.

Western candy industry expects to see itself on a much firmer and better foundation at the close of 1927 than it has been on for several years.

From the Rockies

by Thomas D. Mack, Denver

DENVER'S comparative geographical isolation, while it of course in no way affects the retailer, has for the jobber and manufacturer of hard candy certain definite benefits and disadvantages. Because the territory on all sides is only sparsely settled, it means that great distances must be covered in order to attain a volume that might be obtained in a relatively small eastern area. On the other hand these great open spaces have a tendency to discourage outside

competition, although this does not apply to the great nationally advertised lines. However, practically all hard candy consumed in the mountain states is manufactured in Denver.

While there are probably a dozen factories here that manufacture hard candy in connection with their general line, there are only a few jobbers in the field. This is due to the fact that the manufacturer prefers to sell direct to the retailer. One jobber states, however, that local factories are generous in their co-operation and ordinarily do not attempt to undersell the jobber, in most instances selling at a cent or two a pound higher.

A survey of the field seems to indicate that hard candy is regarded as something of a "necessary evil" in the industry. Some look upon it largely as a Christmas specialty, letting it drag along during the year till the yuletide, when it sells itself. The primary reason that comparatively little energy is used in pushing it is the small margin of profit it returns. It is just as easy to sell chocolates and bon bons and much more lucrative. During the holiday season groceries and drug stores sell proportionately more hard candy than the confectionary stores, as it seems to have become the custom for them to stock up on it at this time of the year, the exclusive candy store simply continuing it as an adjunct to their regular line of soft goods. One salesman suggested that the labeling of this candy "Christmas Candy" was a very bad practice as the dealer very seldom thinks to remove the card bearing this designation, and in months ensuing this gives an impression of staleness.

The Christmas phase of hard candy is, however, as one jobber amended, beginning to assume a more "year 'round" complexion. The dry airtight jars that have come so commonly into use is responsible for this. The store of this particular jobber happens to be in the retail district, and some of his customers come from passersby who buy in wholesale quantities. The sale of these 5 pound jars, usually the filled-in confection, is becoming daily more constant. Many families buy these jars and keep one always in the pantry for the children or when there is an appetite for something "sweet." The hermetic containers will preserve the candy fresh for weeks, whereas the chocolate type of confection is ordinarily consumed in several sittings.

Free Air Conditioning Service!

Denver manufacturers believe that in the making of hard candy they enjoy one important advantage over eastern competition. That is the low relative humidity assured them by one mile of altitude. They have the same ideal manufacturing atmosphere the year round which candy makers at lower levels encounter only during the winter months. It was the opinion of one retailer, however, notwithstanding this admitted advantage, that experience accrued in years of candy making had considerable bearing on this point, as the product of one large eastern manufacturer in the business for half a century seemed to retain its freshness longer than the local makes. He believed this came from a fineness of process acquired from a deeper study and wider knowl-

—Photo courtesy Cooling & Air Conditioning Corp'n.

Making cough drops under perfect control of temperature and humidity.

edge of the subject, although the fact that this brand sells at a cost somewhat higher than the western lines may have something to do with it. When asked whether, in spite of the increased price, the eastern brand was the more popular, he intimated that it was kept for those who cared to pay the price, the cheaper grades satisfying the ordinary demand.

That Denver is now the heart of the greatest beet sugar center in America might be thought to be an economical benefit to candy manufacturers here, but it seems that this is not so, the beet sugar industry exacting a price on a par with the New Orleans market, or sometimes 1 cent in excess of it. The present discriminatory freight rates also works an injustice against them in the procuring of essential raw materials, which the Pacific coast states do not have as the railroads are there permitted to compete with Panama Canal water transportation.

Denver has one exclusive hard candy manufacturer who specializes in children's penny pieces of the sucker variety, and in the five years he has been in business has built up an interesting volume, covering the entire West and exporting to numerous of the Pacific islands. The head of this company was formerly a salesman who was impressed by the lack of this specialty in most lines; his organization now manufactures entirely for manufac.urers of general lines and jobbers, and their output is always sold far in advance. At the Christmas season, when their regular line falls off, all types of hard candy are made for the holiday consumption.

There are a surprising number of "from factory to consumer" confectioneries in Denver, many small but some quite pretentious. The proprietor makes and sells his own product direct to the consuming public. All makes hard candy, and while much of it is inferior some of it is quite excellent, and where care is exercised in stocking it under proper conditions it retains its freshness and brilliance for a long time. One in particular has developed a considerable demand for a pure sugar stick of a twisted cylindrical shape, made in many different colors and flavors, sold by the pound. Another popular specialty with him is a hard fruit drop. Lately he has begun purveying hard candy products in jars with a patent-applied-for device inside the cover absorbing the moisture.

The most essential step in educating the public to a particular form of confection is to see that it has a wide distribution among the retailers. In this it would seem that Denver has been lax, for while all carry some hard candies the assortment is invariably inadequate. This applies particularly to small packages, which are difficult to get, and which should be the popular seller.

That there is generating a consistent and substantial demand for hard candy, however, receives recognition in the fact that a well-known Denver manufacturer who sells his products through a string of branch stores in Denver and other western cities, and who has heretofore specialized exclusively in chocolates and bon bons, is about to launch out with a full line of hard candies, which, carrying the prestige of this house, will be of admittedly high quality.

From the Northwest

by J. E. Smith, Minneapolis

THE future of the hard candy business in the Northwest is promising. It is constantly growing and future development depends on the way it is handled, upon quality of goods and service to promote consistent display of the merchandise. If there is a let down on either of these points it will be disastrous. Gradually the business is encroaching upon other lines of candies for every day use.

This is the opinion formed from interviews from a manufacturer, jobber and retailer, representative of the three branches of this industry.

Although it manufactures several kinds of candy the Cunningham-LeBaron Co., Inc., 248 First avenue N., is specializing on a dainty filled confection distributed in several sizes of tin container. An evidence of the possibilities in this line is that the firm began three years ago and has already enlarged five times in size and will double its capacity in May when it moves into a new building. Mr. Armstrong, superintendent, said:

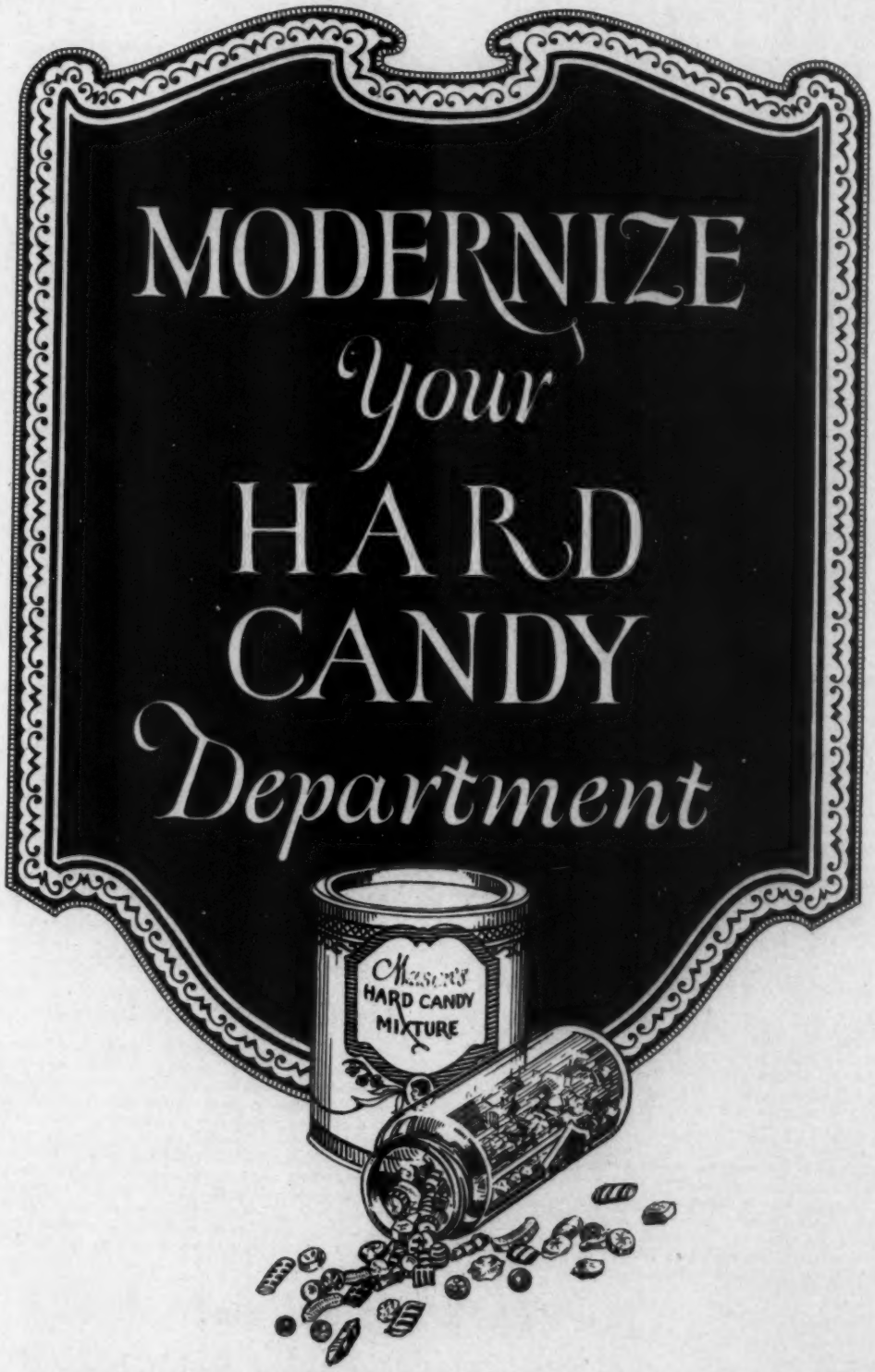
Mr. Armstrong, Supt. Cunningham LeBaron Company.

"We know how to make hard candy out of sugar, with no cream of tartar, properly colored and flavored and daintily filled. I invented the machine myself and it is unlike anything else. We make the line in 2 shapes with 10 colors. It is pretty to look at and good to eat, which are necessary qualities to make it a success.

"We make fudge and caramel suckers (Twin-Liks) and the latter is one of the big sellers on the market. The trouble with some candy it is too hard to eat, and we have tried to get away from that feature. Our hard candy may be eaten without teeth. We have 40 varieties of stick candy, which has its season, and we make the old time mixed which sells through three months, but the dainty filled sells the year round. This is packed in airtight cans and will keep a long time.

"The trouble with some manufacturers is they use enough glucose to hold the candy together and cream of tartar or acetic acid to kill the grain. We do not have to. We get the fluffiness through a machine that pulls the candy and leaves the air in, and it is filled with cream. We don't care whether we sell any other candy or not but concentrate on making the best hard candy we can all the way through. It sells to the dealer at 40

(*Continued on Page* 75)


MODERNIZE
Your
HARD
CANDY
Department
HARD CANDY
MIXTURE

Supply and Equipment Manufacturers have contributed much toward the progress of the confectionery industry

INTENSIVE study of the production and marketing problems of the manufacturing confectioner by leading equipment and supply manufacturers working in close cooperation with the superintendents and sales executives of our industry has brought about most of the modern improvements in manufacturing and merchandising of confectionery today. Special recognition is due the supply firms who spend their time and money in research and development of new and better applications of their products to the needs of the manufacturing confectioner.

THE advertisements of many of these "trail blazers" in this issue are particularly informative—read and re-read them and file the issue for reference after writing for full information. Of course, mention THE MANUFACTURING CONFECTIONER, and add any remarks you feel justified in making regarding the "reader-interest" of this publication in your organization—it will be mutually appreciated.

Machinery and Equipment—

have been developed which permit a volume tonnage of quality hard goods at much lower cost than ever before in the history of the confectionery industry—especially plastic goods. The new batch mixer marks a new epoch in production of solid hard goods.

Air conditioning is accepted as a prerequisite for stabilizing the manufacture of hard goods which keep their finish and possess the proper eating and keeping qualities when received by the dealer and consumer. Furthermore, production schedules can be maintained independent of weather conditions and that means labor turnover reduced to a minimum.

Sucker machinery has been developed to high standard of efficiency, including the wrapping operation. Automatic packaging machinery presents interesting possibilities for merchandising hard candies in 5c, 10c, 15c packages——an almost virgin field; the recent development of an air tight, moisture proof carton will no doubt give big impetus to this business before the year is over.

Colors and Flavoring Materials—

the heart and soul of hard candy—will either make or break the line. It is more vitally important to make the right selection of the source of supply of colors and flavors than any other item in the confectionery supply line, no doubt, especially for the confectioners who do not have a highly organized laboratory control service.

A candy manufacturer must often confide in and counsel with his supplier to the extent of explaining his formulas and process in order that the proper color and flavor be used which will give the desired results—some funny things happen to a batch of candy quite contrary to expectations because of the action of certain properties in the colors with other materials in the same batch.

We believe the supply firms who have placed their sales message in the advertising pages of this publication are worthy of your confidence and a preference of your purchases because they have a background of experience and specialized knowledge of the application of their products to the confectioners' needs which is a big factor in the profitable relationship which should exist between buyer and seller.

Corn Syrup for Hard Candy!—

It is refreshing to see in this section a double spread advertisement on corn syrup with some real, informative "reason why" copy! This is an innovation in corn products advertising which we predict will prove very profitable to the refiner who has exhibited this special interest in the production problems of the confectioner by developing a special corn syrup for the manufacture of hard candy.

This is the kind of advertising copy which we believe manufacturers like to see in their own publication—it is the kind of copy which makes the advertising pages what they should be—just as valuable and as interesting a part of the literature of the magazine as the editorials and text matter.

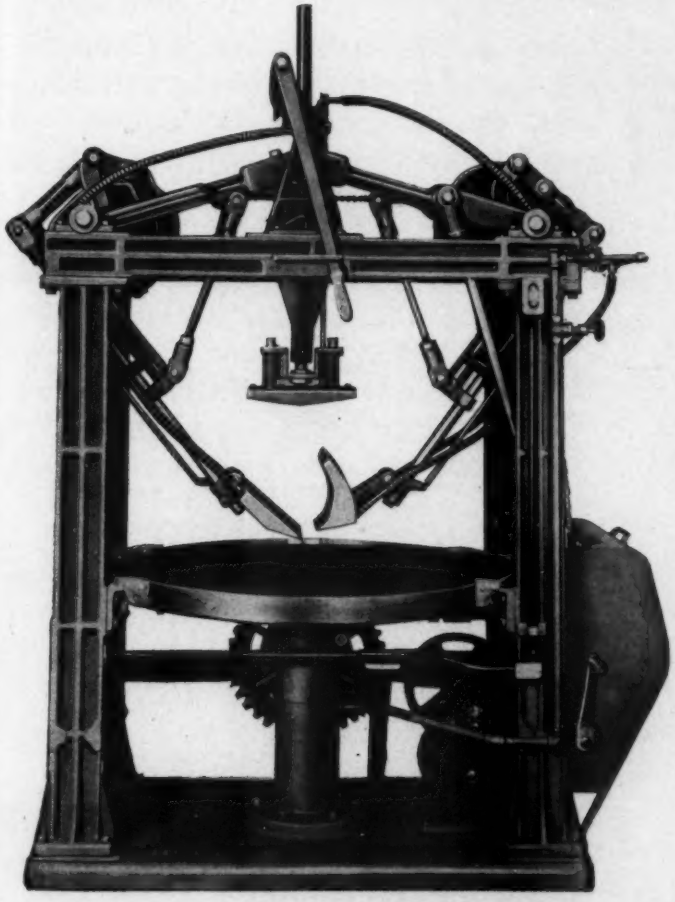
Hard Candy Containers—

Some very significant progress has been made in the development of glass jars and closures for hard candies. The application of the vacuum pack to hard candy jars has a new significance with the perfection of a closure which can be removed without damaging the cap and replaced on the jar again—a feature which adds to its utility in the home. The recent announcement of a consumer-size jar fitted with hydroscopic material in the inside of the cap is also a development in the right direction of getting hard candies in the hands and homes of the consumer in the same bright, dry condition as made in the modern factory.

Can we be of service to you?

The Manufacturing Confectioner Publishing Co.

Modernize the Mixing of Color and Flavor in Hard Candy



This Berks Batch Mixing Machine has handled batches up to 130 pounds. This machine is now being used by the largest Cough Drop Manufacturers in the country.

WRITE FOR FULL INFORMATION

with a

Berks Batch Mixer

(Patents Pending)

This machine will mix Color and Flavor in Hard Candy better and more perfect in every way than by hand operation, at a big saving in labor cost.

SPECIFICATIONS

Dimensions—Floor space, 6 feet by 3½ feet; height to top of plunger rod, 107 inches.

Horsepower—One horsepower motor. Chain driven.

Weight—One and one-half tons.

Table—42 inches diameter. Water cooled.

Capacity—5 tons and over per day.

Built and Sold by

BERKS ENGINEERING CO.

READING, PA.

MODERNIZE *Your* HARD CANDY *Department*

Simplex Hard

The Preferred Equipment o

A partial list of the many users of Simplex Candy Machinery

Advance Candy Co., Inc.
American Candy Company
Ed. M. Backer Company
Beech-Nut Packing Company
John F. Birkmeyer & Sons
Frank E. Block Company
Bonita Company
E. J. Brach & Sons
Bradas & Gheens
Bradley, Smith Company
Brandle & Smith Company
Brown Cracker & Candy Co.
Brown & Haley
Bunte Bros.
Cedar Rapids Candy Co.
Charms Company
Chase Candy Company
D. L. Clark Company
Cobb-Mack Candy Company
Cosner Company
Crystal Pure Candy Co.
John H. Dockman & Son, Inc.
Elmer Candy Company, Inc.
Geiger Candy Company
Gibsons, Inc.
E. Greenfield's Sons
Griffin Grocery Company
Griggs, Cooper & Company
Harding Bros., Inc.
Henry Heide, Inc.
H. L. Huff Mfg. Co.
Jenner Mfg. Co.
Robert A. Johnston Company
Kibbe Bros. Company
King Candy Co.
Life Savers, Inc.
Loft, Inc.
Loose-Wiles Biscuit Co.
Lovell & Covel Co.
Wm. H. Luden, Inc.
May Company
J. G. McDonald Chocolate Co.
Minnehaha Candy Co.
Mueller-Keller Candy Co.
National Candy Co.
W. C. Nevin Candy Co.
Norris, Inc.
Novia Candy Co., Inc.
Nutrine Candy Co.
Pacific Coast Biscuit Co.
Park & Tilford
Parisian Chocolate Co.
Reinhart & Newton Company
Richards-Scheble Candy Co.
Reymer & Bros.
F. H. Roberts Co.
Fred Sanders
W. F. Schrafft & Sons Corp.
Schwarz & Son
Frank G. Shattuck Co.
Showley Bros.
Shupe-Williams Candy Co.
Snyder's, Mrs.
Sweets Company of America, Inc.
Tennessee Biscuit Co.
Triangle Candy Co.
Tru Blu Biscuit Co.
United Drug Co.
Voegele & Dinning Co., Inc.
W. H. Weatherly & Co.
Weideman Company
Stephen F. Whitman & Son
Williamson Haisel Frazier Co.
Geo. Ziegler Company
Zion Institutions & Industries

CANADA

Ganong Brothers, Ltd.
L. Martineau, Ltd.
McCormick Mfg. Co., Ltd.
Sterling Candy Co., Ltd.
Willard's Chocolates, Ltd.

FOREIGN

A. W. Allen, Limited
Aulsebrook & Company
Tai Foong Canning Goods Co.
Fraser & Nicholson
Handelsman Bros.
Hoadley Chocolates, Limited
Honolulu Dairymen's Ass'n, Ltd.
R. Hudson & Co., Ltd.
O. Kobayoshi
Manila Gas Corporation
M. Y. San & Company, Limited
On Lok Yaen Company
John V. Spellman

Sales and Profits in Hard Candy can be increased in two ways—by cutting prices and lowering quality or by cutting production costs and improving quality.

Whether you make hard candies in quantities requiring a single machine or a battery, Simplex Vacuum Cookers will enable you to make better goods at a lower cost of production as they are for hundreds of candy makers throughout America.

Simplex equipment having been universally accepted by successful manufacturers both large and small — CAN YOU AFFORD TO BE WITHOUT IT?

4-Speed Simplex Continuous Cutter

A PROFITABLE INVESTMENT

The new Simplex Continuous Cutter is especially designed to meet the many requirements of the candy manufacturer. Its mechanical features and refinements enable you to increase your production which results in increased profits.

Vacuum Candy Machinery Co.

Ravenswood and Lawrence Aves.
CHICAGO

74 Pearl St.
JERSEY CITY, N. J.

Candy Machinery

America's Leading Hard Candy Makers

That the latter method is better is so obvious as to require no argument. And the Simplex Vacuum Cooker will enable you to make better candy at lower cost.

The Simplex method is the most efficient for producing hard candies in general, including:

Straight sugar fruit drops, stick candy, etc.

Satin finish candies.

Popular mixes with a large percentage of corn syrup which will have a high satin finish.

Suckers with any percentage of sugar and corn syrup.

Simplex Gas Cooker

The Simplex Gas Cooker

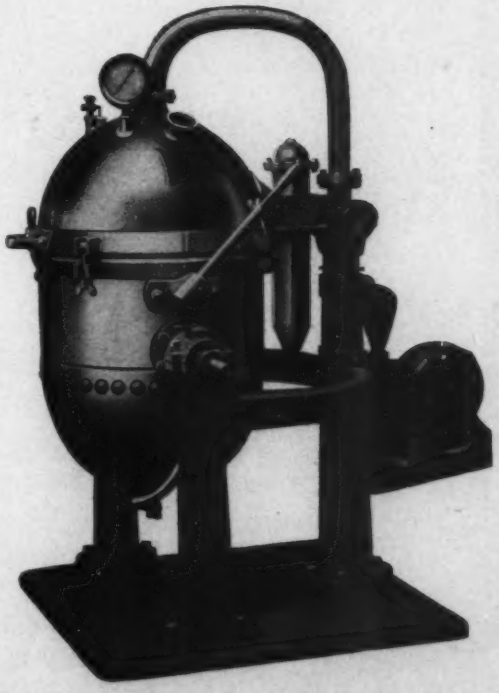
THIS model will handle batches of 25 to 100 lbs., and as each batch is ready to work immediately after it has been poured no time is lost waiting for it to cool. No special skill or mechanical knowledge is required to operate the Simplex Cooker as it is simple in design and as nearly fool-proof as it is possible to make a device of this kind.

Floor Space, 2 x 4 ft.; **Height,** 6 ft.; **Power,** ½ h. p.; **Capacity,** 1400 lbs. per 9 hr. day (With extra lower kettles output can be increased to 3000 lbs. per day or more); **Weight,** 1200 lbs.

The Simplex Steam Cooker

BATCHES of 25 to 200 lbs. can be cooked with this steam operated model and like the gas cooker—each batch is ready to work as soon as it is poured—a highly advantageous feature of the Simplex. The steam jacket is extra heavy and as no coils are used, the danger of "graining" is eliminated. A counterweight lifts the dome and a tilting device permits the finished batch to be poured from the kettle.

Floor Space, 4 x 6 ft.; **Height,** 6 ft.; **Power,** ½ h. p.; **Capacity,** 2000 lbs. per 9 hr. day (With extra pre-melting kettles output can be increased to 5500 lbs. per day); **Weight,** 2000 lbs.



Simplex Steam Cooker

RACINE CONFECTIONERS' MACHINERY

Model "M" Racine Sucker Machine

(PATENTED)

The products of the Model "M" are among the best selling suckers on the market today. They include the base ball, foot ball, golf ball, golf club, flat oval "pops" with embossed names or figures, as well as many other designs which are popular and attractive.

In this machine the suckers are formed in dies under pressure, are perfectly shaped and have smooth, straight edges.

Because of the rapidly increasing demand for the class of goods made by the Model "M" it should have a place in every factory where suckers or hard goods are made.

RACINE CONFECTIONERS' MACHINERY COMPANY
RACINE, WISCONSIN, U. S. A.

Creating a larger market for HARD CANDY

MODERNIZE Your HARD CANDY Department

A larger market is being created for hard candy with the 5c package of fruit drops.

These delicious candies in their sparkling foil wrappers and cheery colored bands are so inviting and always within easy reach—the customer cannot help but obey the impulse, pick up a package and put down a nickel.

Hard candy in this form can be sold everywhere—in the regular candy stores, at newsstands, railroad terminals, etc.

Here indeed is a real opportunity to build up a business of large volume in hard candy. The popularity of a 5c seller has been demonstrated time and again—look at chewing gum, mints, chocolate bars, taffy bars.

The machine that makes it easy to handle this business of large volume is our EE Fruit Drop Wrapping Machine—the machine that wraps Beechnut Fruit Drops, Life Saver Fruit Drops, Lance Cough Drops, Payroll Lozenges, Mars Chocolate Bits, etc.

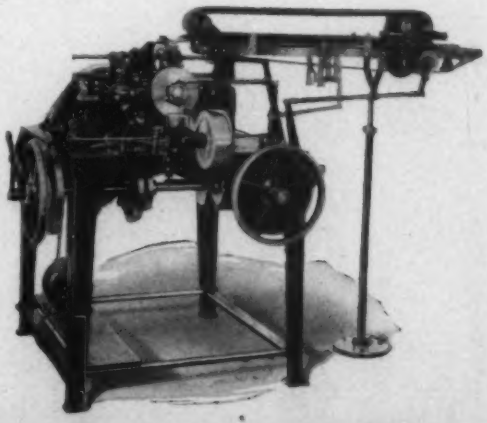
This machine produces 18,000 packages per day. The tablets are assembled in stacks by an assembling machine and the operator then feeds the stacks into the wrapping machine which wraps each stack in foil fed from a roll, banding it in a printed label sealed with paste. The completely wrapped product is discharged by a conveyor to a plate for packing.

Complete information will be furnished upon request. Write to our nearest office.

Stick candy is wrapped automatically on our model SC machine. Without any adjustment whatever, this machine will take the normal variations in the size of sticks and with simple changes it will wrap sticks ranging from 4" to 6" in length and from 3/8" to 5/8" in diameter. The length of paper can be varied with the length of sticks giving the utmost in paper economy. Machine wrapped sticks are wrapped tighter and more uniformly than hand wrapped sticks and at less cost.

Write to our nearest office for complete information.

Model EE Fruit-drop Wrapping Machine



PACKAGE MACHINERY COMPANY

SPRINGFIELD MASSACHUSETTS

NEW YORK
30 Church Street

CHICAGO
111 W. Washington St.

MODERNIZE Your HARD CANDY Department

SPRINGFIELD

Continuous Cooker

Cooks at a Cost of $.0015 per lb.

HERE are some certified facts on Hard Candy Cooking, obtained from an impartial survey on the Springfield Continuous Cooker. This Cooker, operating 8 hours a day, keeps six candy makers busy, with 16 batches of 45-lb. center work, a daily average production of 4,320 lbs. On hard candy without centers the daily production would average 6,000 lbs.

WRITE today for a copy of this survey on the most modern method of cooking hard candy. Survey NT-146-TM.

Cost of operating the Cooker per day.....	$ 6.61
Saving per day over former method.....	3.02
Saving per year—280 days @ $3.02.....	845.60

Better Cooking than with Vacuum Pan
Superior to Open Fire Cooking
Quick Cooking betters quality

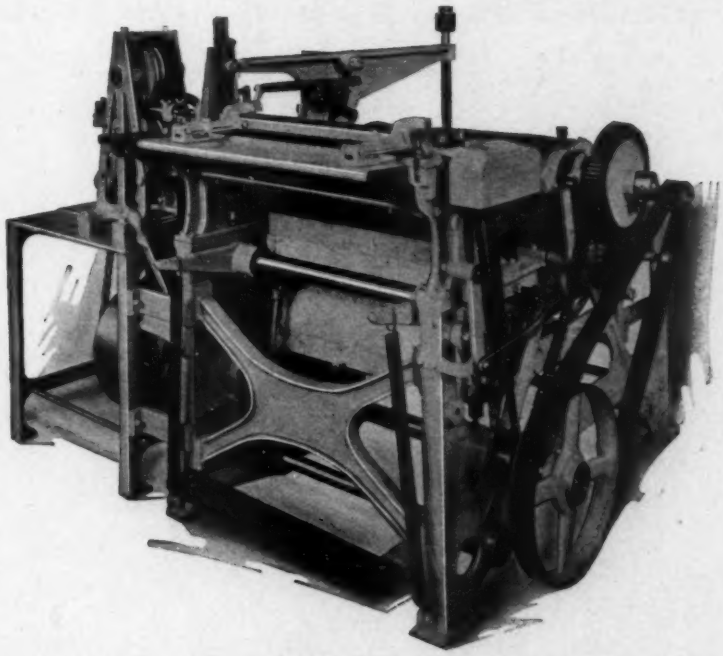
No Hard Candy Department is completely modernized or efficient without the Springfield Continuous Cooker. We will gladly give you full details upon request.

National Equipment Company

Largest Manufacturer in the World of Candy and Chocolate Machinery

Springfield, Massachusetts, U·S·A

The AUTOMATIC HARD CANDY MACHINE *for* SPHERICAL HARD GOODS



This machine embodies in it all the features of the Semi-Automatic Machine plus the added convenience of Sizing, Feeding, Cutting and Discharging, ***entirely automatically***

IT SAVES LABOR
INCREASES PRODUCTION
DOUBLES YOUR PROFITS

Hard Candy Producers:

Special provisions are also made for producing the now famous fruit tablets on this machine. It merits your consideration. Write us.

Full information on request — Do it now!

JOHN WERNER & SONS, Inc.
ROCHESTER, N. Y.

New York Office: Alamac Hotel.

MODERNIZE your HARD CANDY Department

"Make Hard Candy in Weather like this!!"

Sure—every day is Hard Candy Day when your plant is equipped the "Chillblast" way.

(The letter on opposite page tells the whole story)

Imagine the mess of scrap if the windows were opened!

THE above photograph shows one corner of the packing department at Thinshell Candies, Inc. The packers are filling glass jars from a large bin of high quality satin finish plastic goods. (The illustration on opposite page shows the opposite corner of this same room). Imagine what a mess of scrap it would be if the windows were opened for thirty minutes! No thanks; successful manufacturing confectioners don't take any chances with the weather man—they make their own weather, and that's a highly technical service on which the Bentz engineers have specialized.

PACKING hard candy in hermetically sealed containers, which keep the goods in fine, salable condition indefinitely, while the rain pours down outside is possible in this well equipped hard candy plant because the packing department is "conditioned" with a Bentz "CHILLBLAST"—a patented dehumidifying apparatus of modern design which makes and controls just the ideal atmospheric conditions desired in the factory.

A Bentz engineer will make an "accounting" of your factory conditions and suggestions for your consideration without cost to you.

May We Send You Bulletin G-141

BENTZ ENGINEERING CORP'N

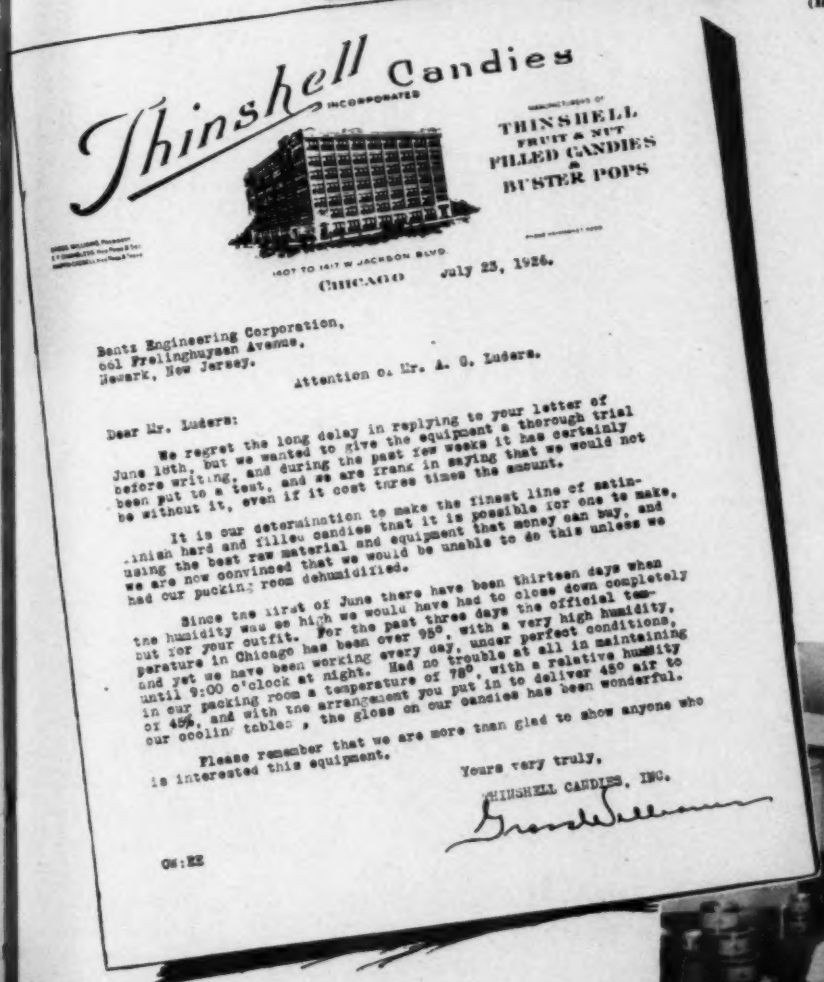
661 Frelinghuysen Ave., Newark, N. J.

CHICAGO: 123 W. Madison St. **NEW YORK: 122 Greenwich**

At Last! Steady Jobs for Hard Candy Makers

The following want ad "pulled" applications from the best hard candy makers in the Chicago territory, because the position assured steady work, made possible by a properly equipped factory.

(Reproduced and enlarged from the Help Wanted Section of the Chicago Tribune, issue of August 13, 1926.)



Thinshell Candies
INCORPORATED

MANUFACTURERS OF
THINSHELL
FRUIT & NUT
FILLED CANDIES
&
BUSTER POPS

1407 TO 1417 W. JACKSON BLVD.
CHICAGO

July 23, 1926.

Bentz Engineering Corporation,
601 Frelinghuysen Avenue,
Newark, New Jersey.

Attention Mr. A. G. Luders.

Dear Mr. Luders:

We regret the long delay in replying to your letter of June 16th, but we wanted to give the equipment a thorough trial before writing, and during the past few weeks it has certainly been put to a test, and we are frank in saying that we would not be without it, even if it cost three times the amount.

It is our determination to make the finest line of satin-finish hard and filled candies that it is possible for one to make, using the best raw material and equipment that money can buy, and we are now convinced that we would be unable to do this unless we had our packing room dehumidified.

Since the first of June there have been thirteen days when the humidity was so high we would have had to close down completely but for your outfit. For the past three days the official temperature in Chicago has been over 95°, with a very high humidity, and yet we have been working every day, under perfect conditions, until 9:00 o'clock at night. Had no trouble at all in maintaining in our packing room a temperature of 78°, with a relative humidity of 45%, and with the arrangement you put in to deliver 45° air to our cooling tables, the gloss on our candies has been wonderful.

Please remember that we are more than glad to show anyone who is interested this equipment.

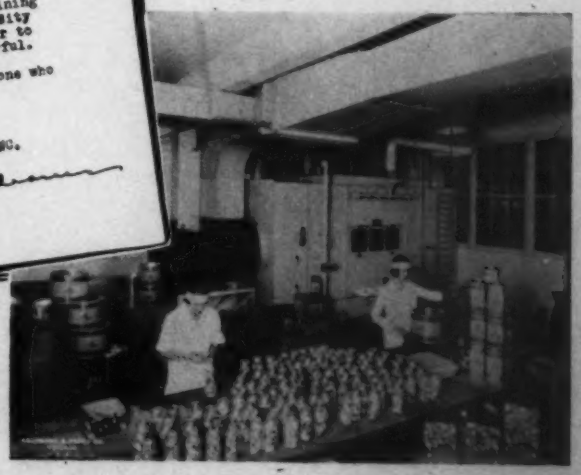
Yours very truly,
THINSHELL CANDIES, INC.

GW:EE

THERE were only 5 days during the month of August when the weather was right for operating the hard candy department. Even in the bright, sunny days the atmosphere was too humid to permit the safe packing of hard goods, but there were no shutdowns at the Thinshell factory—one of the largest and finest equipped hard candy plants in the United States.

The letter reproduced herewith tells the story of ideal manufacturing conditions for a hard candy department. The fact that this modern air conditioning equipment (Bentz CHILLBLAST), attracts and holds the most desirable class of skilled help is a big consideration in itself toward justifying the investment in Bentz Engineering Service.

Bentz Engineers will give you counsel and make an impartial survey of your conditions and submit plans and estimate, without obligating you in the least. Let us hear from you, please.



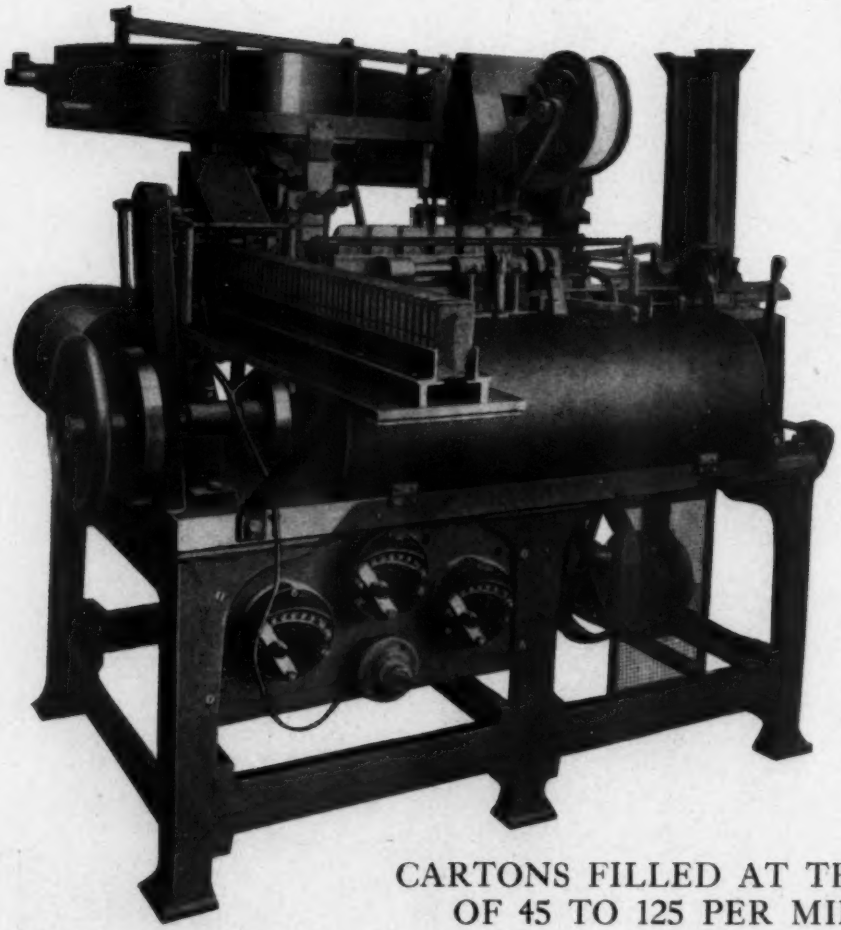
Packing Room at Thinshell Candies, Inc., showing the Bentz CHILLBLAST Air Conditioning Unit in Background.

CARTONING MACHINERY CORPORATION

NEWPORT, RHODE ISLAND

PAPER LINING AND CARTON FILLING MACHINE

CANDY AND MEDICATED TABLETS
COUGH DROPS & FRUIT DROPS



The machine which packs the leading brands of hard candy into cartons.

A sure way to get your hard candies on the counters in 5c, 10c and 20c units.

We manufacture the following types of packaging machinery:

FOR CARTONS:

Carton Opening Machines
Carton Lining Machines

Filling, Weighing, Counting, Tucking and Sealing Machines

FOR BAGS:

Bag Making Machines
Bag Filling Machines

Wax or Glassine Paper Bags Filled by Count, Weight or Measure.

CARTONS FILLED AT THE RATE OF 45 TO 125 PER MINUTE

The Above Machine Feeds Waxed or Glassine Paper from Rolls, Lines Carton and Fills with Required Amount of Articles, Closing Carton Automatically.

FLOOR SPACE: Length, 8 Feet; Width, 6 Feet. H. P. ½

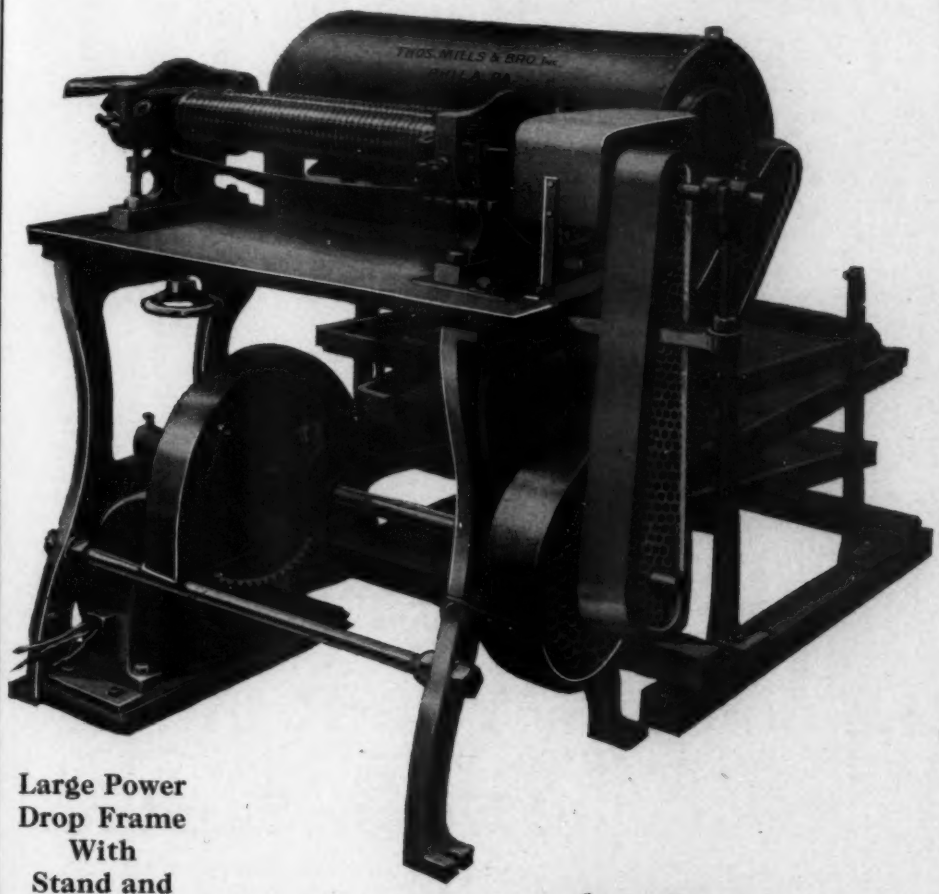
Send Us a Sample of Your Product; Our Engineering Department Is at Your Service

MODERNIZE Your HARD CANDY Department

Thomas Mills & Bro., Inc.

1301 to 1315 North Eighth St. Philadelphia, Pa.

ESTABLISHED 1864



Patent Automatic Seamless Hard Candy Machine

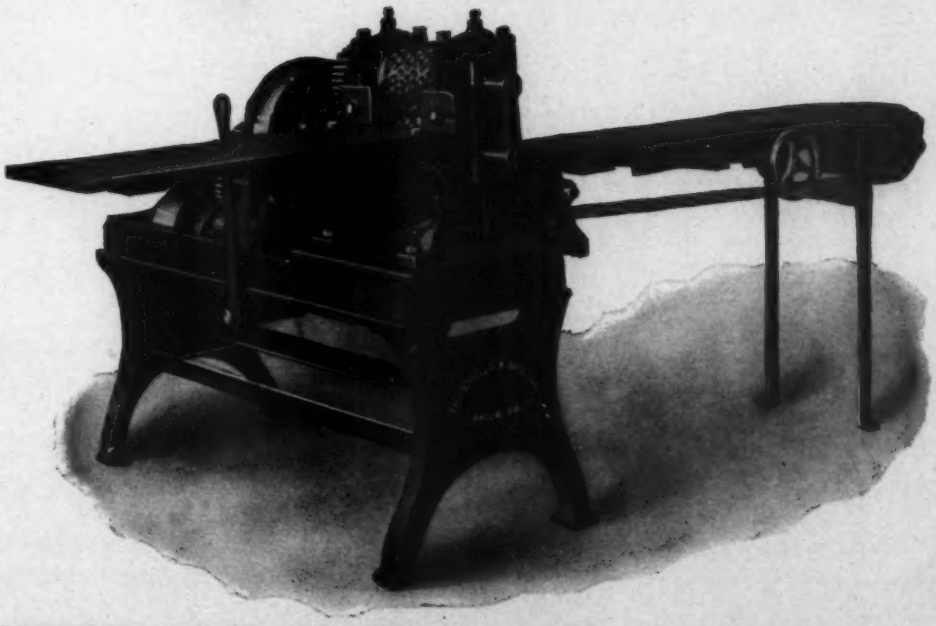
Improve Your Production By Installing This Labor Saving Machine

Send for Special Circular

Our Catalog of Confectioners Equipment Sent on Request

Large Power Drop Frame With Stand and Endless Belt Conveyor Attachments

Used In All The Largest Factories For High Grade Hard Candies



MODERNIZE your HARD CANDY Department

SUGAR SANDING MACHINE

For Sugar Sanding Gum Drops, Hard Candies, Etc.

Fully Patented

Operated on Same Floor as Mogul or on Other Floors

Begin the New Year Right

by installing the

Modern Method of Sugar Sanding

thereby eliminating all your sugar sanding troubles, enabling you to increase your business in this department and fill your orders promptly.

Mahan's Continuous Sugar Sanders

will save you TIME, MONEY, SPACE and do much better work than the revolving pans. It will sugar sand all kinds of gum drops, jellies and hard candies. It will handle the goods as fast as they come through the mogul or starch buck, no matter how soft.

We furnish one-half horse power motor, directly attached to the machine.

Our machine is in use in over eighty of the largest and best managed factories in the United States and abroad. Several companies have three or more in use.

Partial list of satisfied users:

Henry Heide, New York
Chase Candy Co., St. Joseph, Mo.
E. Greenfield's Sons, New York
Quaker City Conf. Co., Phila.
New England Candy Co., Boston
United Candy Co., Boston
Fred W. Amend Co., (Chuckles)
Paul Beich Co., Chicago
Wm. Luden Co., Reading, Pa.
E. J. Brach Co., Chicago
D. Auerbach & Sons, New York
Brandle & Smith, Phila.
Beechnut Packing Co.
Shutter Johnson Candy Co., Chicago
National Candy Co., Chicago, Cincinnati, St. Louis, Kansas City

If you want to save Time, Labor, Money and Space send for our catalog

SUGAR SANDING MACHINE COMPANY

2325 Edmondson Avenue **Baltimore, Md.**

MODERNIZE your HARD CANDY Department

The Desirable Gloss on Hard Candies

A Problem *of* Air Conditioning

WHEN the experienced candy manufacturer examines hard candy, either from his own plant or his competitor's, and finds the individual pieces beautifully glossy and free from stickiness, he knows that the manufacturing and packing has been done only within a dry, non-humid atmosphere. He knows, too, that natural weather conditions permit the successful production of this type of goods for only brief and uncertain periods during the Winter months.

MODERNIZE *your* HARD CANDY *Department*

There are, however, factories which are entirely independent of the weather,—factories which are enabled through *Manufactured Weather* to maintain a uniform schedule of hard candy production and packing throughout the year regardless of the season or the weather. These factories are Carrier Conditioned; equipped to automatically create and maintain the conditions of temperature and humidity best suited to the product being made. We number among these some of the finest and largest candy factories in the country and particularly those producing the highest grade of hard candies on the market, for example: **Bunte Bros., S. F. Whiteman & Sons, Luden, Inc., Beechnut Packing Co., The Nunally Company, Belle Meade Sweets.**

If you have already a surplus of refrigeration it would not be an expensive proposition to have our engineers design and install equipment to condition the hard candy department in your plant, thus enabling you to add this profitable line to your products or to improve your present quality and schedule of production.

If your refrigeration is insufficient there is the new, compact Carrier Centrifugal Refrigeration unit, using a harmless, inoffensive liquid as a refrigerant, which could be installed in your plant in connection with an air conditioning system for all departments.

Carrier AIR CONDITIONING AND DRYING EQUIPMENT

The finest candy factories in the world are Carrier Conditioned

Write the details of your problem
Ask for a visit from one of our Engineers

Carrier Engineering Corporation

Office and Laboratories

NEWARK, NEW JERSEY

NEW YORK - PHILADELPHIA - BOSTON - CHICAGO - CLEVELAND - KANSAS CITY - LOS ANGELES

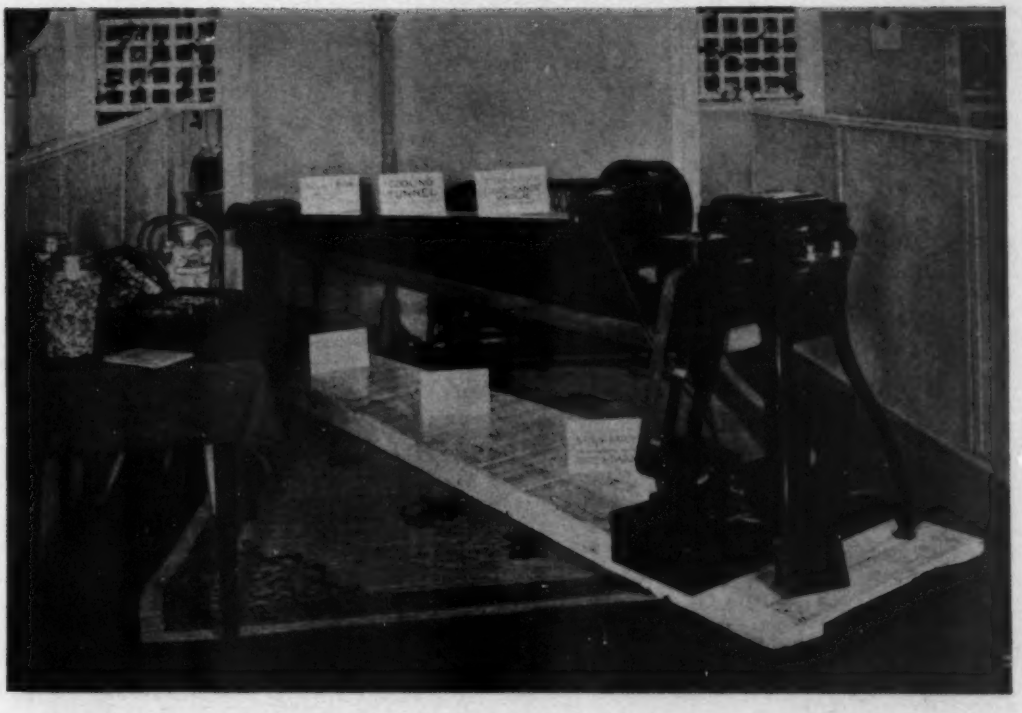


Exhibit of the Premier Unit at Exposition of National Confectioners' Association, Boston, 1925

A wide variety of fine Satin Finish Goods can be produced with a

BRACH Continuous Cutter and Cooler
(The Premier Unit)

The machine will pay for itself in short time with the savings in labor costs effected

Write us at once for detailed information. 30 day approval period.
Liberal installment plan with one year to pay for machine.

WRITE TODAY

EMIL J. BRACH

Confectionery Machinery

4656 Kinzie Street **CHICAGO**

Pages 51-54 are ads.

To Thoroughly Modernize Your
Install an E. & R. Automatic

High Speed Production

A 75-pound batch can be run through the machine in from 6 to 14 minutes depending on size of piece.

MODERNIZE Your HARD CANDY Department

You can make, on the E. & R. Plastic Candy Maker, paper-thin shelled pieces or solid center goods, narrow-band pieces or wide-band pieces.

Send for full information and sample pieces produced on the E. & R. Plastic Candy Maker

The Moderate Priced American Automatic Plastic and Hard

Eastern Representative

JOHN WERNER & SONS, Inc.

ROCHESTER N. Y.

ALAMAC HOTEL NEW YORK CITY

Your Hard Candy Dep't
tic Plastic Candy Maker

Perfectly formed and perfectly sized pieces

The pieces are so gradually and completely formed that the jacket is perfectly sealed all around the center, preventing the filling from becoming rancid or dried out.

Simple, Accessible
Dies Easily and Quickly Changed

MODERNIZE Your HARD CANDY Department

The E. & R. Plastic Candy Maker and Cooling Conveyor

can Built American Serviced
Hard Candy Machine

ELDER & ROBINSON COMPANY

Builders and Designers of Special Automatic Machinery

5711 W. Chicago Avenue

CHICAGO

First Producers of Certified Colors

ATLAS CERTIFIED COLORS — scientifically prepared to meet the needs of the highest type of confectioners and for every purpose in the confectionery industry — particularly for plastic and clear hard candy work.

Uniformity **Purity**

Strength **Solubility**

Food Color Headquarters for Fifty Years

FIFTY YEARS AGO WE PRODUCED THE FIRST HARMLESS FOOD COLORS used in the United States (after long study by experts of their physiological effects—the first and only work of this kind ever undertaken on coal-tar colors), and after establishing their harmlessness for food, every batch was tested before being distributed. This was 30 years before certified colors came into use, of which we were the FIRST PRODUCERS. We have never yet failed to prove any official wrong who claimed to find objectionable colors in our customer's goods. No manufacturer ever suffered through the use of them. We were largely instrumental in halting opposition of important officials when the present Food and Drug Act was before Congress, who would have forbidden all food coloring if they could.

COLORS FOR PLASTIC WORK

Atlas Cert. New Rose
" " Marseline Orange
" " C. D. M. Green
" " Mauvine
" " 514 Brown

and many others, which will produce those beautiful and delicate shades of nature.

CONFIDENCE

The Progressive Manufacturer can only establish a quality product by using the best material; there are no ingredients in which confidence in the producer is so absolutely necessary or important as in Colors and Flavors. **Our 75 years of business experience is a guarantee of quality products, and a sound basis for your confidence.**

GENUINE FRUIT EXTRACTS

Our Genuine Fruit Extracts are not only so-called, but the **product of the actual fruit whose name they bear.**

The production processes are by special apparatus and methods which retain and preserve all the finest and most delicate esters and aromas of the **finest selected fully ripe fruit picked where the most lucious of its kind is grown.**

We shall be glad to have an order for pint samples and suggest our **wonderful Genuine Fruit Strawberry and Raspberry Extracts.**

H. KOHNSTAMM & CO., Inc.

Established 1851

11-13 East Illinois Street
CHICAGO

Factory:
537-555 Columbia St., Brooklyn, N. Y.

83-93 Park Place
NEW YORK, N. Y.

Just What

are you doing to help your salesmen get and hold their share of the hard candy business this year?

This new company was formed by men who have had years of experience in the candy and chemical business. Every product we offer has been thoroughly tested, permitting us to supply you with accurate formulae.

Additional equipment in your plant won't do it. You can't always sell lower than your competitor, so price can't do it. A good looking package or label will help the first sale but won't hold the business.

HARD CANDY FLAVORS

There is absolutely no reason why the consumer of your candy should be forced to "guess" as to the flavor. The line we offer is complete, *and has been tested in every conceivable kind of hard candy under all conditions.*

We invite correspondence and will gladly send samples.

WHY not put some flavors in your hard goods, flavors that are not affected by the heat, flavors that in your finished goods, whether they be suckers, bulk clear goods or plastic work, have a strong, luscious, appetizing, pleasant taste of the fruit or floral product they are made to represent.

FOOD MATERIALS CORPORATION

220-224 North Desplains St., CHICAGO

The Hard Candy Flavoring Problem

and how Fritzsche Brothers have met it

THE improvement of a confection which primarily is an agent of pleasure, is made evident through the senses. The sense appeal in hard candy is confined essentially to sight and taste—appearance and flavor. As flavor specialists for more than a half century, our message is in relation to the latter.

THE relatively high temperatures at which flavor is introduced during the process of the manufacture of hard boiled goods in general, is one of the **severest tests** which a flavor ever receives. Heat is a natural enemy; it drives off by evaporation much of the flavor added and destroys many of the more delicate and volatile constituents;—the greater the heat, the greater the destruction and loss. This is why True Fruit Flavors cannot successfully be used in such products —they are too delicate.

For many years the hard candy maker has, as a result, depended on powerful, cheap and long lasting mixtures known as Ethereal Flavors. "What if they did not very accurately represent the flavor implied by their title, they nevertheless cost little and lasted in the candy?" has been the fallacious argument.

The Trend Toward True Fruit Flavors

FOR several years, however, the public taste has trended more and more toward **true fruit flavors** and **flavors based** on the **extractives from the fruits**—and we might add at this point that long experience in this field has taught us conclusively that the consuming public is genuinely sensitive even to the slightest shades of flavor difference. Oftentimes, they seem able to better discriminate between a twelve and fourteen dollar flavor in the finished candy than the buyer does in the concentrate itself. Strong competition has convinced the up-to-date hard candy manufacturer of this improvement in the public taste and has forced him to take steps necessary to meet this condition.

Some years ago we set about the difficult task of evolving a strictly modern type of flavor which would taste like fruit itself and which, at the same time, would successfully withstand the temperatures encountered in the making of hard candies. This involved the use of direct extractives from the fresh fruits and a solution of the grave problem of fortifying, stabilizing and fixing these delicate aromas in a manner never before attained.

After many trials, we were convinced that our efforts had been successful and the results were offered to the manufacturing confectioners throughout the United States and Canada. In business, however, it is results that count and we are content to let these latter supply our eulogy.

Why We Sell 80% of Candy Industry

AT present, we are furnishing **nearly 80% of the** manufacturing confectioners with our flavors and attribute this almost universal appeal to the fact that they are **powerful, lasting and economical in use;** the flavor is **always uniform** and, most important of all, imparts to your candy the flavor that the public desires.

Acid exists always in fruit in delicately balanced combination with the flavor. The proportion of the two in candy, therefore, should be made the subject of careful study. Some hard candies have so much acid that the flavor is spoiled or lost. **Too little** is **equally** harmful in effect. Fruit flavors always require the proper amount of acid to develop their best possibilities but it should be remembered that no amount of acid will take the place of a good flavor.

Our Hard Candy Flavors

WE have never launched a flavor group which has so thoroughly and completely won the respect and favor of representative manufacturers as that comprising our Hard Candy Flavors. When combined in candy with the proper amount of acid, the result can only be described as **delicious.** They cost little if any more than the old-fashioned flavors—so little that the difference cannot be calculated in the cost of a pound of candy but the difference in the taste may well represent the difference **between the success or failure of that particular piece.**

This is an age of specialization; every up-to-date candy maker realizes that a flavor designed for a **special purpose** can scarcely fail of better results than the old-time method of using one variety of flavor for all varieties of candy.

We offer the following wide choice of flavors in this group:

FRUIT TYPE:

APPLE	CHERRY WILD	PEACH	STRAWBERRY, FRESH FRUIT EFFECT
APRICOT	CRANBERRY	PEAR	STRAWBERRY, PRESERVED FRUIT EFFECT
BANANA	CURRANT, BLACK	PINEAPPLE	TUTTI FRUITTI
BIRCH BEER	CURRANT, RED	PLUM	VANILLA AND TONKA IMITATION
BLACKBERRY	GOOSEBERRY	RASPBERRY	
CHERRY, WITH PIT FLAVOR	GRAPE	ROOT BEER	
CHERRY, WITHOUT PIT FLAVOR	HONEY	RUM	
	LOGANBERRY	SHERBET	

FLORAL TYPE:

AMERICAN BEAUTY ROSE	HYACINTH	LYRIANA	ORANGE FLOWERS
CARNATION	JASMINE	MUSK	SWEET CLOVER
CRAB APPLE BLOSSOM	JOCKEY CLUB	ROSE	SWEET PEA
HELIOTROPE	LILAC	VIOLET	TURKISH LILIES
HONEYSUCKLE	LILY	WISTARIA	

Samples and suggestions for use are freely at the disposal of the manufacturing confectioner.

FRITZSCHE BROTHERS, Inc.

"A flavor for every Purpose"

New York
82 Beekman Street

Toronto
Fritzsche Brothers of Canada, Ltd.
93 Church Street

Chicago
118 West Ohio Street

Cosco Hard Candy Flavors

Offered upon their merit because—

First: They resist a high degree of heat.

Second: They produce the True Fruit Flavor.

Third: The flavoring cost is only one fourth cent per pound.

Furnished in the following flavors:

Cherry, Tame	Grape	Pineapple
Cherry, Wild	Peach	Raspberry
	Strawberry	

A trial Pint will be sent on approval.

Cosco Plastics

have been used successfully for many years for Filled Confections. They are composed of the highest quality ingredients and are a result of scientific skill in manufacture. Furnished in Plain, Cocoanut, Strawberry, Raspberry, Fig, Loganberry. Used for Caramel Layers, Cream Centers, Bars, Bon Bons and general line of Plastic work.

Best results obtained from COSCO HARD CANDY FLAVORS when used in conjunction with COSCO PLASTICS.

Order a 30-pound trial pail.

SETHNESS COMPANY

659 Hobbie Street
Chicago

1133 Broadway
New York

American Certified Food Colors

THERE is in the American Line of Primary and Secondary shades, a color for your every requirement. All are **Certified** as harmless, uniform, brilliant and of highest money value.

PINKS

Rose Pink	(Bluish shade)
Kleomine Pink	(Yellowish shade)
No. 517 Erythrosine	(Very Brilliant Pink)

REDS

Panaline Red	(Bright Carmine)
Regal Striping Red	(A Bright Red)
No. 56 Ponceau 3R	(Scarlet)
Straline Red	(Strawberry)
Rasbet Red	(Raspberry)
No. 107 Amaranth	(Deep Bluish Red)

BROWNS

Javan Brown	(Deep Chocolate)
Kola Brown	(Coffee Shade)

BLUES & VIOLET

Cynthe Blue	(Light Blue)
No. 692 Sodium Indigo Disulphonate	
Violena	(Brilliant Violet)

GREENS

Emera Green	(Pistachio)
No. 433 Guinea Green B	(Bluish)
No. 435 Light Green S. F.	Yellowish

YELLOWS

Lemarine	(Lemon Shade)
Gloco	(Golden Yellow)
No. 94 Tartrazine	(Brilliant Yellow)

ORANGES

Koban Orange	(Yellowish)
No. 85 Orange 1	(Reddish)

Samples and quotations gladly submitted

American Aniline Products, Inc.

1818 South Clark St., Chicago, Ill.
45 E. 17th St., New York, N. Y.
77 Bedford Street, Boston, Mass.
Bulletin Bldg., Philadelphia, Pa.
F. B. Ludwig, 250 Ivy St., Atlanta, Ga.
Factory: Lock Haven, Pa.

Higher Candy Belting Standards Will Reduce YOUR 1927 Costs

Burrell Glazed Table Cold Belt in OH Henry Plant

We manufacture every kind of belting needed for the candy industry—Burrell Special Belts for hard candy, sucker, cutting machine, coldbed conveyor and enrobing machines, and BURMALINE, that saves you money for power transmission.

More productive time, less shut-downs and belt replacements and a better finish to your goods are guaranteed in the belting you order from us.

Buy from the People Who Understand Your Needs

BURRELL BELTING COMPANY

Manufacturers of Burmaline Belting—Alfalfa Belting—Ebony Transmission and Conveyor Belting—Universal Belt Oil.

419 South Hermitage Ave. Chicago, Illinois

Use Burnett's Color Pastes

For the handsome brilliant colors that build up winter sales of hard candy

IT IS the clear, brilliant colors of hard candy that make it sell. Handsome colors attract the eye, and the sale follows. It is important to use the finest colors obtainable.

Burnett's Color Pastes are carefully ground to mix quickly and evenly with the batch, giving a clear, brilliant color, free from specks. U. S. certified absolutely pure.

Eleven Colors

BURNETT'S Color Pastes offer you the following excellent shades —red, rose, green, orange, yellow, scarlet, caramel, blue, violet, chestnut and peach. Each is brilliant, strong, pure, disolves quickly and mixes evenly without specks.

Six Convenient Sizes

IN GLASS JARS—3 oz., 6 oz., 12 oz. and 2 lbs. And in 10 lb. and 25 lb. pails.

JOSEPH BURNETT COMPANY

Order from your Jobber

Boston, Massachusetts

The ARIDOR JUNIOR

"THE MOST BEAUTIFUL PACKAGE FOR HARD CANDY IN AMERICA"

An absolute reality in consumer appeal—the JUNIOR fulfills the essential service for which "Aridor" stands—"To Help You Sell More Hard Candy" by keeping it dry and bright while being enjoyed to the last piece. The JUNIOR embodies the sale requisites you seek—fully warranting your adoption NOW—right after the Holiday Season and continuing throughout 1927.

WHAT THE JUNIOR JAR IS DOING— Bringing leading Hard Goods manufacturers increased sales by eliminating the possibility of Hard Candy, offered in a one-pound consumer jar, becoming sticky, and unappetizing while being opened from time to time in the home.

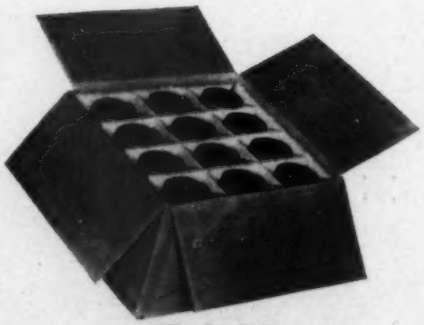
EVERY JAR WITH AN ARIDOR ABSORBING PAD— The JUNIOR Cap is equipped with a special Aridor moisture-absorbing pad—keeping the inside of the jar free from moisture—thus insuring the Hard Candy remaining dry and bright indefinitely.

A ONE POUND POPULAR SIZE— A sixteen-ounce jar has become the most popular unit of sale for Hard Candy in glass—a quantity sufficient for ordinary home enjoyment, and easily "tucked in" for week end trips, parties and gifts. The ideal unit to feature the year 'round.

RARE BEAUTY OF DESIGN— The JUNIOR, with its six flat display sides, brings out perfectly each distinctive shape without distortion from curved surfaces—blending the delicate colors into a pleasing Hard Candy offering of unique design and rare appeal.

HANDSOME DECORATED AND EMBOSSED CAP— The JUNIOR Cap, offered in striking, pleasing colors—red, blues, greens, browns, gold—blends with all face label colorings, instantly attracting the consumer's eye. In addition, your name may be prominently embossed in the Cap for brand featuring.

EACH DOZEN IN RESHIPPING CARTON— The standard packing of the JUNIOR is 12 jars to a regulation reshipping container—each jar in an individual corrugated pocket, eliminating breakage—supplying a popular dealer unit of sale and eliminating cost of cartons.



"Twelve In"

MODERNIZE your HARD CANDY Department

THE ARIDOR JUNIOR—THE MOISTURE - PROTECTED ONE POUND JAR—WILL BRING YOU BRISK SALES WHEN YOU NEED THEM MOST—

NOW - SPRING and SUMMER

THE ARIDOR COMPANY
589 E. ILLINOIS ST.
CHICAGO

This Canco Collar Herringbone-Score Key-Opening Can protects its contents because air-tight—always opens easily.

Candies packed in this container more than a year, were pronounced by experts—

"As fresh in flavor and appearance as though packed yesterday"

EXHAUSTIVE tests, carried on over a twelve-month period, under actual store and storage conditions, brought out the following advantages of Canco Collar Herringbone-Score Key-Opening Cans:

> ***Any sort of candy can be preserved almost indefinitely in a hermetically sealed can regardless of climatic changes.***
>
> ***The Vitapak Method, that is, the introduction of an inert gas into the hermetically sealed container, has the added advantage that the gas maintains absolute sterility in nuts and fruits.***

To packers enjoying or desiring a wide distribution of their candies, these results should be significant.

This type of can is easy to open—always. It makes the use of a hermetically sealed, gas filled package entirely practical for candy. Decorative possibilities are unlimited.

Let a Canco Representative give you further details.

American Can Company

NEW YORK CHICAGO SAN FRANCISCO

Now!

comes the ideal closure for candy packed in glass

The R-O Cap — Applied Unthreaded — Threaded on the Bottle

R-O

Aluminum Screw Caps

A new principle Hermetic Seal that gives a tight reseal

ALUMINUM

—the cooking utensils metal—is the safest for food.

* * *

It is absolutely rust-proof. Hence Aluminum Sealed packages look better longer.

* * *

Aluminum Seals win greater acceptance for your product among jobbers, dealers and consumers.

THE use of the airtight glass container was a great forward stride in the art of properly packing and distributing hard candies.

The R. O. Aluminum Screw Cap is not only the perfection of this idea, but it carries the principle still further—providing a *reclosure* that protects the candy while it is being consumed.

Unthreaded R. O. Caps are fed into the sealing machine. The machine applies the cap, seats it firmly, shuts out all the air.

THEN ROLLS THE THREAD INTO THE CAP WHILE IT IS ON THE BOTTLE.

A perfect *tailor-made* seal results, because the machine-made thread MUST conform to the contours of the glass—even to its irregularities.

To the packer of hard candies R. O. Aluminum Screw Caps mean less spoilage, better service, better looking packages and *customer good will.*

R. O. Aluminum Screw Caps are furnished embossed or lithographed and with liners suitable for every packing purpose.

For full information write or phone our nearest sales office and a representative will call.

WE FURNISH

Machines that will apply R.O. Aluminum Screw Caps at atmospheric pressure or in a vacuum.

These machines work smoothly, efficiently, and with a minimum amount of glass breakage.

ALUMINUM COMPANY OF AMERICA

Oliver Building, Pittsburgh, Pa.

SALES OFFICES

Albany, N.Y.
Boston, Mass.
Buffalo, N.Y.
Chicago, Ill.
Cleveland, O.
Dayton, O.
Detroit, Mich.
Indianapolis, Ind.
Kansas City, Mo.
New Haven, Conn.
Newark, N. J.
New York, N. Y.
Philadelphia, Pa.
Pittsburgh, Pa.
San Francisco, Cal.
St. Louis, Mo.
Toledo, Ohio
Washington, D. C.

ALUMINUM COMPANY OF CANADA, LTD.
Toronto, Montreal, Canada

Four Mid-West corrugated boxes, filled with bottles of liquid insecticide, were recently shipped from the FLY-TOX factory at Toledo via freight to San Francisco; by boat from this port through the Panama Canal to New York City; across Manhattan to freight station by truck and from New York City back to Toledo by freight. The boxes arrived in the splendid condition shown in the illustration —AND NOT A BOTTLE WAS BROKEN despite multiplied handlings and rough usage —an eloquent tribute to the high, strong, resilient arch construction of the walls of the popular and widely used Mid-West product.

You Can Depend On Mid-West Boxes

The above service story is merely a cross-section of the fine service given to shippers every day in the year by Mid-West corrugated shipping boxes.

In the candy industry, where sweets are often packed and shipped in glass, these boxes are in big demand because they have the strength to aggressively resist transportation abuses, even under extreme conditions, where so many cheap boxes fail to "stand up."

Mid-West boxes are ideal for shipping sweets in any form. The high, strong, resilient corrugations form protective cushions which prevent smashage and insure lower cost per package than is usually the case. Higher, even quality does it. Specify Mid-West boxes.

What are your needs? How can we serve you? Fill in and mail the coupon below — without obligation to you — for a complimentary checkup by one of our packaging and shipping experts on your present system for a possible saving to you of shipping griefs and unnecessary expense. Do it today — NOW.

MID-WEST BOX COMPANY
AND
CONTAINER CORPORATION
OF AMERICA

111 W. Washington St. CHICAGO, ILLINOIS

Five Mills — Nine Factories

Capacity 1000 tons per day

RETURN COUPON
MID-WEST BOX COMPANY
111 West Washington Street, Chicago, Dept. 3

Gentlemen: Please have one of your experts check our present packing and shipping methods—without obligating us—for the purpose of reducing our costs if possible.

Name _____

Title _____

Firm _____

Address _____

Staley's CR

Facts Establishing the Superi
for the Manufacte

(1) It contains a minimum amount of acid allowing the Candy Ma to

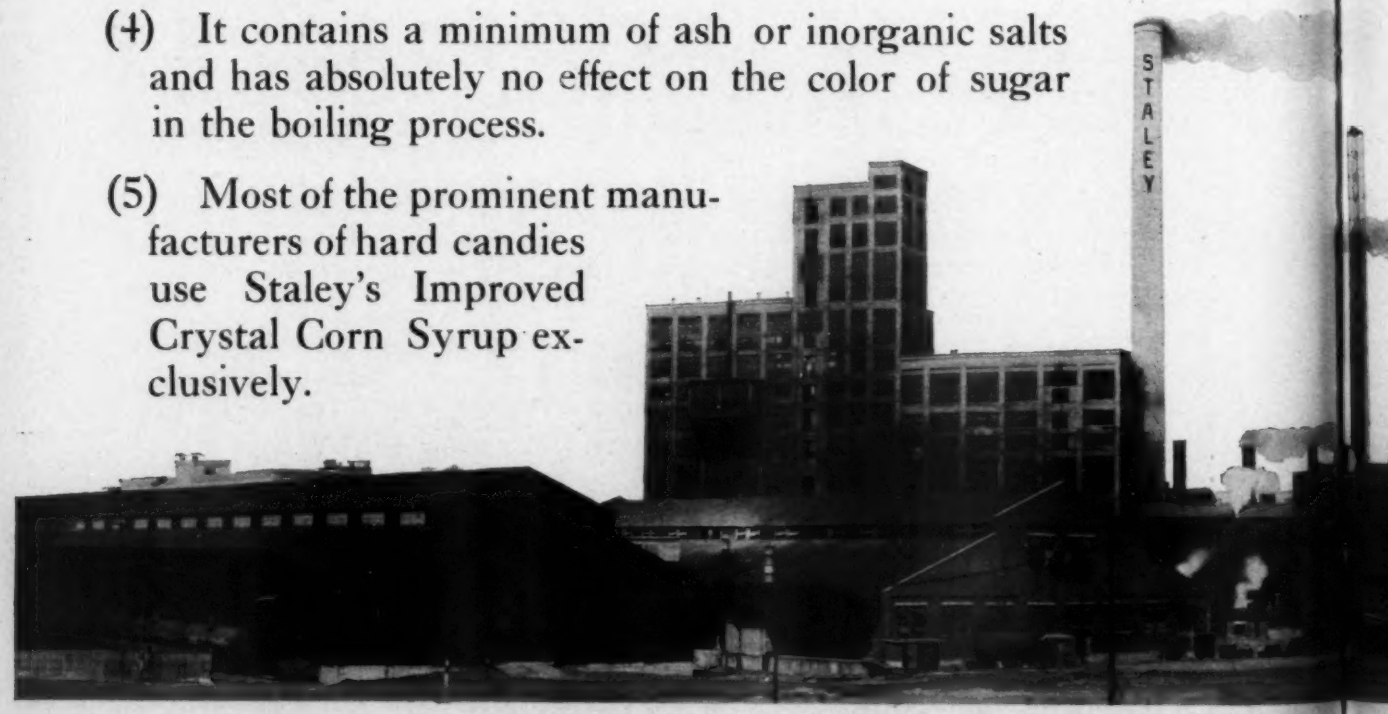
(a)—use a greater percentage of Corn Syrup in the mix
(b)—boil the mix to a higher temperature without discoloratio
(c)—produce hard candy with a minimum amount of inversio
(d)—obtain a bone dry product with a beautiful satin finish ting

(2) It is absolutely water white, producing clear, sparkling suckers fru

(3) Its higher purity reduces frothing to an absolute minimum whed good sugar, and in vacuum pan work, permits faster boiling wut t of loss.

(4) It contains a minimum of ash or inorganic salts and has absolutely no effect on the color of sugar in the boiling process.

(5) Most of the prominent manufacturers of hard candies use Staley's Improved Crystal Corn Syrup exclusively.



PLANT OF THE A. E. STALEY MANUFACRI

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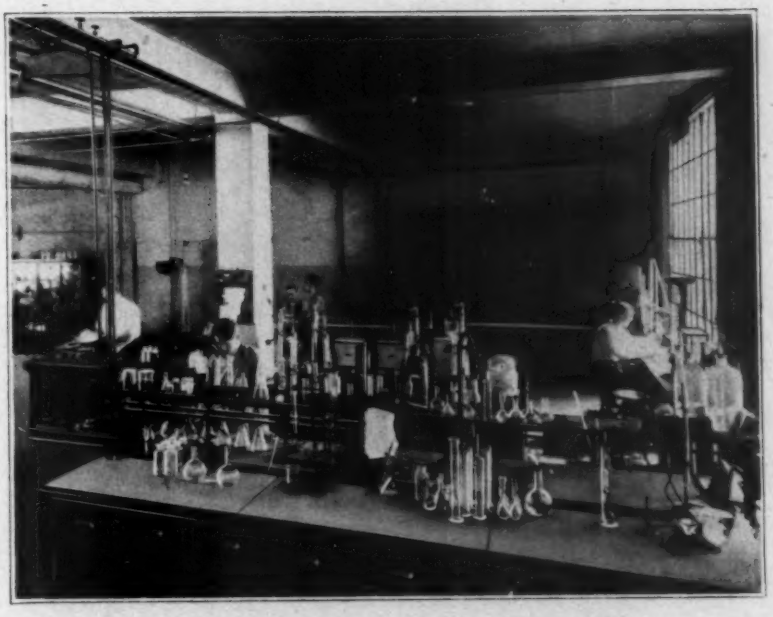
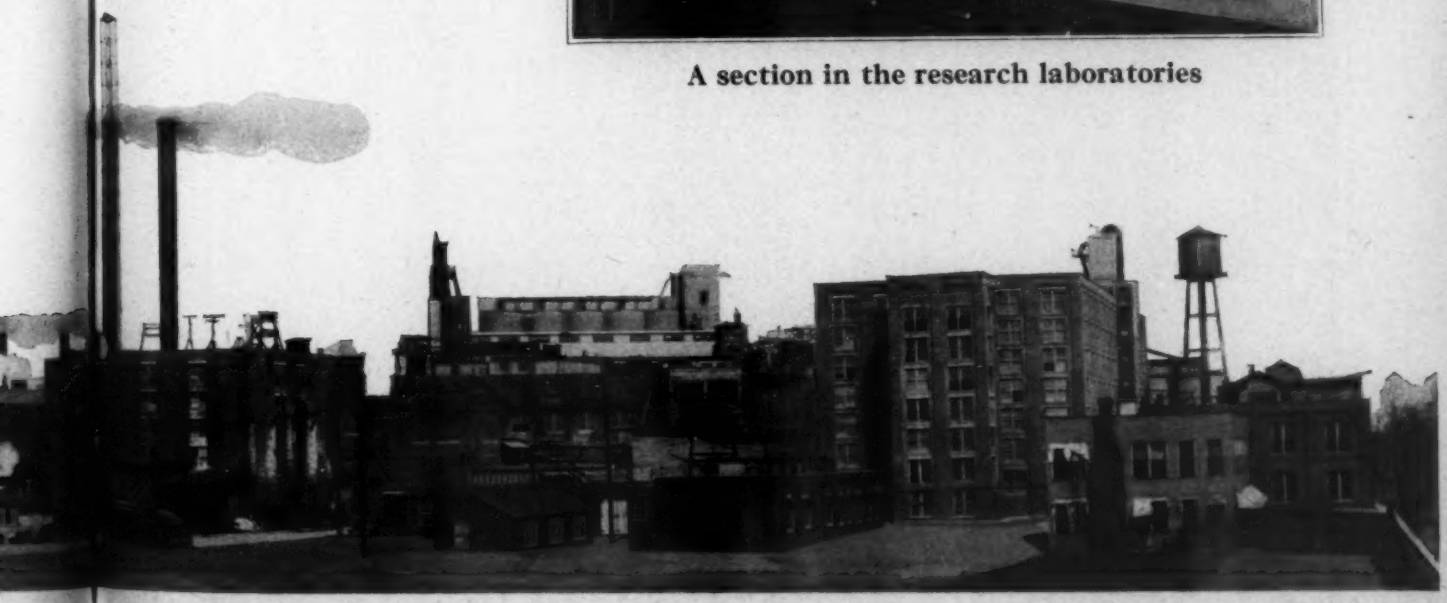


A section in the research laboratories



NUFACRING COMPANY AT DECATUR, ILLINOIS

(*Continued from Page* 34)

cents and is retailed at 75 cents up; this is a 'large town' candy.

"The people are getting away from chocolate in Minnesota, Wisconsin and the Dakotas. We are not jobbing much of these goods although we are handling a fine line.

"This is the best market in high grade candy. They are all filled up on cheap candy. The better price we get for it the better the people like it. We are making more of the filled line than the cheap candies. Even the chain stores up here are handling these highest grades of hard candies to retail at 10 cent units.

"I object to the class of hard candies which give up the filling and leave an outside coating that cracks in the teeth like glass. More care should be taken in manufacturing."

Mr. A. L. Qualley of The Kings X Stores.

A. L. Qualley, formerly a manufacturer in St. Paul, and now proprietor of the King's X Stores, which serve meals as well as being among the leaders in the retail candy business, has decided ideas as to the hard candy business. He is a strong believer in display of candy, especially the hard varieties. He finds it a good all year candy with heavy sales all through the summer. He has noted that the price seems to make no difference.

In the two stores, one in the heart of the city and one in a community center outside, a hundred or more children a day come in. Each gets a bag of four or five pieces of hard candy. This is a retail method that interests the children and often creates sales with the parents even before they leave the stores. Mr. Qualley said:

"I am surprised at the hit or miss style in which some retailers display their hard candies. If the candies are put up in the proper kind of glass for display it brings out the gloss and colors of the candies, and then they are the easiest thing to sell in the stores. The price makes no difference. These are in great demand for bridge parties and service at similar functions.

"A year back if we asked 70 cents a pound for this sort of candy the people would have said we were crazy. Today we make a stick candy that sells at 30 cents but the better kind sells much faster. If the people want chocolates they want them and we sell them but we are selling more and more of the hard candies and no matter what the price they come back and get more."

The Qualley stores utilize the Aridor jars for display of hard candies. In one store there are some 60 jars of these candies in a row the entire width of the show windows, besides a counter display inside. It has proved an effective sales arrangement. Much of the trade is with motorists, who find the hard candy a good touring companion.

Mr. Qualley says the time is coming when there will be a cheaper container for dispensing hard candies than the glass jar. When these candies are sold from bulk and put in a folding box they naturally gum up right away. He is trying out a small cardboard package that looks something like a small tub. The top fits on like the cap in a milk bottle. He keeps the package airtight and the cap is easily replaced after candy is taken out. He put some filled hard candies in this container on October 15 and on December 30 found it still as good and fresh as the day it was packed. Meanwhile it had been through muggy weather and had been carried two weeks through cold weather in his automobile.

"The hard candy field is a big one if worked properly," said Mr. Qualley. "More people ask if we have cheaper priced candy in the chocolate lines than in hard candies. In fact nobody asks us if we have anything cheaper in hard candies. It is a great field."

Seiter-Tymeson, Inc. (Jobbers).

Seiter-Tymeson, Inc., 750 Washington Avenue N., jobbing Bunte candies in the Twin Cities and some of the nearby towns, believe in selling nationally advertised goods but are of the opinion that the business must be followed up or the advertising is of no use. The firm gives a unique service to their dealers. For instance, their salesmen visit every store handling the line some stated day of each week, empty the dust or broken candy, polish the display jars and refill them. Appearance of the display goods is a prime point with this firm.

"Half the dealers are just too lazy to take care of their goods, so we give them that service," said Vice President E. W. Seiter. "We prefer the Aridor jars for year round use in displaying hard candies. We clean the jars and sift the candy and refill.

"The sale of cheap hard candy has dropped out of the market. Better hard candy is taking its place. People who have bought the cheaper hard candy and been made sick wonder why. They find that hard candy not overly colored, made from pure sugar and nothing harmful or detrimental to the health is the kind to buy. We handle nothing else.

"The tendency that is going to hurt the hard candy business is for manufacturers to try and see how cheaply they can turn out candy, and not how good.

"Our salesmen make sales points of the fact that hard candy lends itself to special decorations. Its color and dainty appearance makes it admirable for table decorations and sets it off. If a heavy smoker has no taste for anything sweet like chocolate or rich creams he can sit down and consume a pound of hard candy with enjoyment and without harmful effect where he could not consume 10 cents worth of chocolate candy. It is not so filling and serves the purpose of a nice drink, winter or summer. So the flavor must be right as well as the colors, and be dainty enough not to upset the benefits of the candy."

Mr. Seiter says, "The merchandiser of hard candy must make a big window display and a counter display in glass jars to increase sales. The colors of this candy appeal to the eye and when they do that they appeal to the stomach, and the sale is made and when they satisfy the "inner man" they repeat. They are especially attractive for children when displayed this way, and in my

opinion this is the most healthful candy for children," he said.

"One reason a dealer does not sell as much candy as he should," said Mr. Seiter, "is that he lets the hard candy jars get dusty and show broken candy at the bottom. If the salesman doesn't make an effort to remind the dealer of this fact or if the salesman doesn't himself look after the jars they become instead of an ornament in the store a detriment. The jars must be kept full and clean and shiny. We take care of our dealers with a special service to this end."

From Boston

HARD candy is a profitable commodity to the retailer, jobber and manufacturer in the candy trade of Boston and vicinity had a good year during 1926 and all three parties are unanimous in predicting that the trade will increase greatly during 1927, bringing hard candy back to the position it held several years ago.

Most manufacturers of this territory report an increased demand from the jobbers and the retailers, and are going after the trade with good spirit. The reason for the increased demand, the manufacturers say, is that better materials are being used in its manufacture and new ideas in packing it in an attractive manner for public consumption.

While some of the retailers report that it was just an average year for them as far as hard candy sales were concerned, they state that their sales would have been greater than the year previous had it not been for several weeks of extremely bad weather during the holiday season, which cut into the public demand greatly.

One retailer in particular cited the weather of late October and early November as being a great handicap in their sales, the dampness making the candy sticky and causing them to throw away large amounts daily during the wet season.

In conversation with a leading manufacturer on this phase of the situation it was learned that he had had no difficulty from this source because he used pure sugar in the manufacture of his product, while he claimed others used a heavy proportion of corn syrup, which, of course, could not stand up and fight the weather man in damp weather, causing the public to refrain from buying and also causing the retailer a daily loss by damage.

According to the retailers, sticks, drops and curls, particularly as sold in assorted lots, were their greatest sellers during the year. The largest sellers of all were the plain unfilled candy, with drops and toy novelties made of barley sugar.

The leading retailer states that hard candy is purely secondary with his organization because it is much more perishable than chocolates or bon bons, but his contention as to the perishability of hard candy is countered by the leading manufacturer who insisted that hard candy, properly cooked and made of pure sugar and packed in an air-conditioned factory, is no more perishable than other candies.

This manufacturer, whose organization had its greatest year in the hard candy field during 1926, predicts a greater increase during 1927. He attributes this to the fact that his organization is using nothing but the very best of materials in the manufacturing. He claims that the public has always been ready to buy hard candy, but of late years the quality has not been up to standard and as a result the sales slumped.

His organization intends to continue their present arrangement and his sales force is pushing hard candy to the jobbers and retailers. They have had excellent results from a two-pound can of mixed candy during the past year and will continue to put their product before the public in that form during 1927.

In a sentence, this manufacturer believes in bringing up the quality to high standard, making the candy attractive to the eye by judicious use of coloring and packing it in convenient tins, air-tight containers, proof against dampness which might produce stickiness.

One retailer reports an excellent demand for a special kind of candy called "Glace." When placed on the counters, this brand of candy presented an attractive appearance to the customer and was exceptionally pleasing to the palate. His store had large sales from this kind of candy and expects a continued increase in it.

The Jobber's Viewpoint

From the standpoint of the jobber, the hard candy trade was also a distinct success throughout the year. They all report that a very good increase in sales, during the holiday season especially, was noted and they are optimistic for the future.

Retailers tell them that their customers are returning to hard candy in surprising numbers. The reason for this, according to one jobber, is that women have taken a great fancy to having a plate of hard candy on the library table or the dining room buffet for their visitors. It looks nice all the time, and when made right is very palatable. One jobber states that a retailer's customer, a woman, said she had always kept a plate of nuts for the afternoon visitor, but found that hard candy was more attractive in appearance and better to taste. "Many people like nuts, but most all people like hard candy," he says.

The jobbers are in accord with the leading manufacturer on the remedy for the hard candy trade. They, too, believe that better materials will bring up sales and they are dealing only with those concerns which put out the best product.

A peculiar situation in the hard candy trade

in this district is the small demand for novelty candies, though, as before stated, several retailers did have good sales of this brand during the holidays. However, the season is so short that many retailers do not like to lay in much of a stock of novelty candy through fear of having a surplus at the end of the season.

In summing up the candy situation here, hard candy is coming back. Sticks, curls, drops, novelties, glaces and other kinds are all on the upgrade in sales. The assorted lots of drops, unfilled pieces and short sticks are leading the field, with the others trooping along in good shape. The continued use of first grade materials in its manufacture, the particular attention being taken to packing it attractively and in neat packages, the right kind of advertising of the product and the pushing of the sales force will combine in bringing hard candy sales up to a highly profitable volume. This is the contention of the retailers, voicing the opinion of their customers—the candy consumers.

From New York

by Frances W. Westlake

IF the old penny stick of sugar candy, first made by the early Americans seventy-five or one hundred years ago, could become animated and take a walk down Fifth avenue in New York City and see how its million of descendants—the modern hard candy lines are populating and decorating the foremost candy counters of the city, it would break itself into pieces in an ecstacy of pride and delight.

The hard candy business, indeed, has a thriving present in New York, and great possibilities for the future, in the opinion of the manufacturers, the wholesalers and the retailers who are in touch with the situation here. The wholesaler knows that it is a good proposition today from his order sheets; the shops give illustration of it in their windows and counters; and the jobber, acting as its foster father, is ambitious and optimistic about its future.

The supply and the demand, interdependent factors in any business, have combined to make certain kinds of hard candies predominantly marketed in certain parts of the country. And it so happens that in New York, together with the Eastern and New England states, the regulation hard candies in varied assortments enjoy the largest sale, the plastics and filled goods and old fashioned sticks taking second place.

This condition is probably due to the fact that there are no manufacturers on the Atlantic seaboard who make hard candies exclusively, and that the large candy plants in the region usually put out an assortment of the regulation hard candy numbers (American mixed). In the Middle West, on the other hand, the taste for filled candies has been cultivated by Chicago manufacturers who specialize in that type. In the South, especially Virginia and the Carolinas, the old penny sticks are still the leader, manufactured by the firm of Clark & Jones, which is more than seventy-five years old. The plastics, first made in Austria and then in America by German machinery, are now produced in candy factories from coast to coast.

From the manufacturer himself, the basic things about public demand can be learned, the names, the colors and the flavors of the candies, their best seasons and their prices. The executives of the various houses agree on the principal facts of this phase of their business. Representative among these is the Henry Heide Company.

The number of models or kinds of hard candies is legion, and they are christened with a name appropriate to their appearance as soon as they are produced. There are fruit drops of all flavors and colors in squares, ovals and round balls and the various plastic shapes. There are so-called kindergarten mixtures of hard candies and plastics, containing shapes of animals, fowls, nuts and fruits; opera mints or mint kisses (peppermint disks, white with red stripes); buttercups (or pillows); and Jack straws.

Several of the flavors are indicated by standard colors, such as red and white stripes for peppermint, pink for wintergreen and green for lime. Lavender and other color combinations have no special flavor meaning.

But color is a highly important factor. The manufacturer and dealer agree that the consumer seems to taste with his eye as well as his mouth—that he is perhaps even more particular about the color he is eating than the flavor. Red and the combination of red and white, is the best seller, while green is universally considered an antagonistic color. Too much green or yellow in a mixture ruins its sale. It is not thought advisable to use green for anything other than the lime flavor, which has come to be recognized and accepted by the customer. The American public, it would seem, is developing an artistic sense in connection with its sweet tooth, and objects to gaudy colors which seem to cheapen the candy mixtures. Indeed, the filled goods are being done in beautifully harmonizing pastel shades which appeal not only to the most esthetic appetite, but serve the dealer admirably in making effectively decorative displays.

The public taste about flavor is not so arbitrary, and is undergoing some interesting changes. Formerly peppermint held undeniable monopoly. It still remains a good stock seller, but its popularity is not overwhelming. The assorted candies are bought most, and of course are of assorted flavors. The demand for individual flavors is limited, but among those sought, raspberry

and strawberry are foremost. Mint creams with hard jackets are invariably good. Butterscotch sells well, and hoarhound is demanded with some regularity.

Hard candies, originally thought of only at Christmas time to fill the toes of the children's stockings, continues to be a leading holiday number. Eighty per cent of the hard candies in this territory are sold in the fall and early winter, up until Christmas time. A contributing reason to the fall and winter sales is the fact that hard candy is more easily and successfully kept in winter.

Packing of bulk hard candy is done by the manufacturer most successfully in tin containers of various sizes, with a stuffing of wax paper excelsior at the top. It is also successfully sold to retailers in combination with chocolates or other candies in three pound boxes, a pound of three varieties of candies. The glass jar numbers go directly to the consumer as they come from the manufacturer. These are handled by only the higher priced retail outlets. The mixed boxes are bought largely by department stores, while the assorteds are sold everywhere.

Prices which retailers gets for hard candies vary from nineteen cents a pound to eighty cents, with the fancy filled numbers often bringing as much as one dollar a pound. The ten cent stores can adapt the twenty cent candies readily to their dime prices, while only the exclusive candy shops can handle the fancy priced kinds.

A Jobber on the Future of Hard Candy:

So much for the present, but what of the future? the middleman asks, with the idea of promoting the business. He seems to be particularly interested in hard candies. H. Richardson, general manager of the E. W. Dunstant Company, wholesale confectioners, thinks that there are great possibilities for the future of this type of candy.

"It has never, with exception of Bunte's recent campaign, been advertised to the consumer," he said enthusiastically critical, in discussing the subject. "And it can be done."

Chocolates, chewing gum and the candy bar enjoy an unfair popularity over hard candies for this very reason, Mr. Richardson believes. He cites the instance of the five-cent packages of fruit drops which have been marketed successfully recently by Beechnut and other firms. Offering constructive suggestions, he believes that manufacturers could make their goods more "advertisable" by putting out novelties for the holiday seasons, both in the candies themselves and in the container. They could capitalize on Mother's Day, Valentine's Day and Easter as well as Christmas, he believes. The magazine publicity would compelete the job.

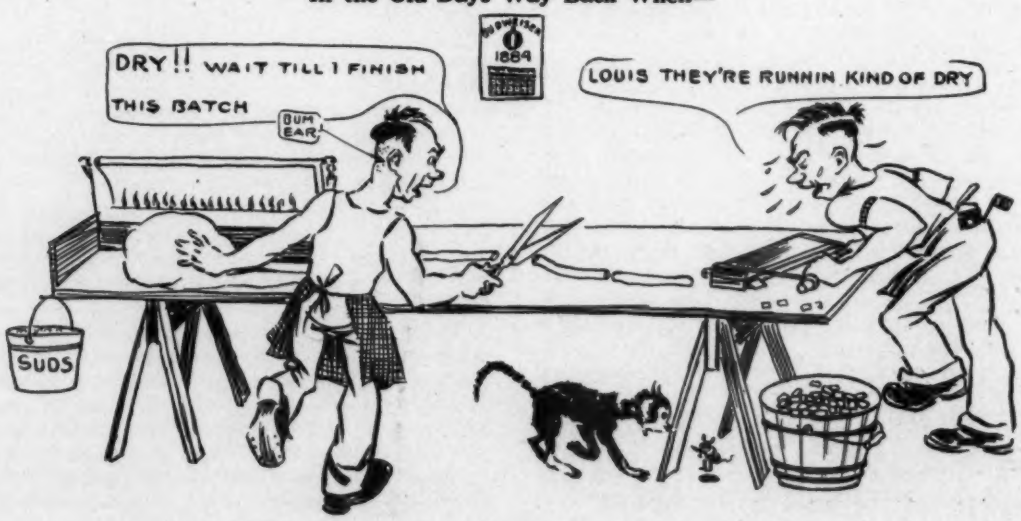
The retailer's part in advertising depends upon his methods of display, for which hard candies are peculiarly well adapted. A fundamental of display is successful preservation, Mr. Richardson hastens to make clear. Dealers have found that glass jars containing hydroscopic pads which have an affinity for moisture, are the best preservers equipment for keeping and displaying the stock. The standard size holds five or six pounds of candy, according to weight. For the rest, the displays depend on the ingenuity and artistry of the store's decorator.

Hard Candy Displays

Hard candies as a feature of window decoration and counter display in New York City are conspicuous and have been handled effectively by such stores as the Mirror, Schrafft's, and are to a less degree featured by Page & Shaw and Huyler and Happiness.

A combination of assorted hard candies with their gay coloring with chocolates is a favorite window display of the Mirror shops. One characteristic one had a background and flooring of two tones of green velvet. Boxes of chocolates and glass fruit bowls alternated in tiers to build the candy picture.

In the Old Days Way Back When—



Attractive show case display of hard candies, Pennsylvania Hotel Drug Store, New York City

Another combination was with grain crisps. The straw-colored crisps were spilling in careless fashion from boxes while the hard candies upheld the lines and orderlines of the display in the pedestalled glass bowls. The floor trim here was of gold and blue satin.

An interior of one of the Mirror shops this winter season is featuring hard candies. The back of the store, which is beautifully mirrored and plainly visible from the front of the shop, has a tier of three shelves on which the candies are displayed. The two lower shelves contain the five-pound glass jars of assorted candies. The top shelf has alternating tall and short, slender jars of various kinds of the candy, topped with fancy glass lids and tied with enormous red satin bows. The shelves back of the counters have similar displays.

One of the most artistic displays for beauty of color combination was seen in a Schrafft's window. In a glass shelved showcase, open boxes of satin sticks, in soft shades of pink, tan, green and white were shown. To vary the display, the box tops, made of tan satin and tied with Alice blue bows were arranged with now and then a straw basket of roses. Little fresh felt dolls, dressed in pink and blue, stood on top of the show case carrying little wax paper packages of the candy.

Another Schrafft's window featured a butterscotch display. A center piece of a silver platter containing large patties was surrounded by tall silver vases of butterscotch creams, erect and overturned, and by other platters of small patties. The flooring of the window was done in beautifully contrasting electric blue velvet.

In all of these candy stores, displays inside the glass counters are in oblong tins. The tins are sold out almost daily and then replenished from the glass jars which contains the moisture-absorbing pads.

The retailers are well satisfied with the grade of candies which they are receiving from the factories. The manufacturers feel that the retailers are playing square in the matter of price. It is apparently only the wholesaler who has criticisms to make. But his criticisms are constructive and probably will help to promote the success of the hard candy business.

From the South

by Geo. Tichenor, New Orleans

THE distribution and manufacturing situation of hard candy in the South, on the whole discouraging, is brightened by what a number of confectioners are consistently accomplishing in educating the public taste and holding their own against discouraging climatic conditions.

Climate is the greatest single factor in disturbing the sale of hard candy in the territory of New Orleans, local distributors agree.

In the summer, when the thermometer hangs around the 100 mark and chocolate candy has dropped in sale anywhere from 50 to 60 per cent or more, the sale of hard candy, usually steady the rest of the year, drops also, from 10 to 15 per cent.

The fact that hard candy is seldom featured by confectioners is another disturbing factor. A. L. Wiener, sales manager for Allmont Candy Co. here, estimates that there is only $300,000 worth of hard candy sold in this territory a year, of which $75,000 is manufactured by local concerns and of a cheaper grade.

"We prefer to specialize in the chocolate candy," said Mose Jacobs, president of the Jacobs Candy Co., one of the largest candy concerns of the South. "The Bunte people and other northern manufacturers are far better equipped with spinners and presses and other apparatus than we are," he continued.

The Jacobs company, like six or seven other large candy manufacturers here, content themselves with putting out five-pound jars and tins of lemon, cherry and other drops, also colored stick candy in jars, fruit tablets and mints in pillow form, "after-dinner" size or in large striped sticks that are popular in Christmas stockings.

There is no candy manufacturer in the city, it could be ascertained, who has plastic machines for making the satin finished and filled hard candy. "There are only a few who employ the 'butter-cup' and 'jack-straw' methods," said Mr. Wiener. "Yet we are able to keep the Bunte line we carry moving nicely all the time," continued Mr. Wiener. "Of course, we have to be careful about whom we sell to, otherwise we would load the dealers with a fine lot of candy that they couldn't sell because of the high price or they would neglect the care of the line and the weather would ruin their stock.

"The best equipment that has been recommended for displaying hard candy here are hydroscopic pads that some drug store counters are equipped with. But not many retailers appreciate this advantage. There are not more than a hundred retailers here who are equipped and satisfactorily handle good hard candy.

"Does cheap candy hurt the sale of good hard candy? Not a bit, because the two grades appeal to different types of buyers. There is a distinct patronage for the satin finished candy in different price levels," he concluded.

It is agreed by those interviewed that the mint flavors are usually the best sellers of hard candy. The S. H. Kress department store, with probably the largest sales of hard candy in the city, is an excellent criterion of what is going well in the candy line. During the Christmas holidays the store sold its entire stock of 25,000 pounds of French or mixed creams, G. C. Chambers, manager, said. The sale of other candies was also rapid, although Mr. Chambers declined to give figures.

The Kress Company does not buy from local manufacturers or jobbers but directly from Chicago, New York, Cincinnati and St. Louis. They carry a medium grade of moderately priced goods. They give their own trade names to a number of candies, such as "bonanza mixture" for the French creams and gum drops and assorted nougatines.

Hard sanded mixed candies are always good sellers, Mr. Chambers said. "We do not carry the unsugared candies, because nearly all of them would spoil during the hot weather," Mr. Chambers declared.

That's that, for the usual lines of hard candies. New Orleans has one specialty that is almost exclusive in the candy line—Creole pralines. These inviting little "patties" incrusted with home grown pecans are irresistible to Northern visitors during the Carnival season. Kate Latter's Shop, Katz and Besthof, Fuerst and Kraemer and other companies are selling pralines at a dollar a dozen and higher. Attractive boxes, designed with log cabins and "mammies" are good pullers.

"The hard candy business in the South will grow when retailers are educated to the possibilities of better selling and displaying," said Edward J. Reiss.

"They must learn how to keep their candy from the moisture here, and they must learn how to display it effectively," he summarized. Mr. Reiss is optimistic for the trade in New Orleans and the South and praising of the line of Thinshell Candies, Inc. Walter M. Lowney Company of Boston, E. Greenfield of New York, and Brandle and Smith of Philadelphia, for whom he is agent.

U. S. Census of Candy Manufacturers

Advance report of the 1925 Census of Manufacturers conducted by U. S. Department of Commerce, Released

by LeVerne Beales

Chief Statistician for Manufacturers, Dep't of Commerce

THE Department of Commerce announces that, according to data collected at the biennial census of manufactures taken in 1926, the establishments engaged primarily in the manufacture of confectionery and salted nuts reported, for 1925, products valued at $380,761,000, an increase of 4 per cent as compared with $366,256,000 for 1923, the last preceding census year.

Of the total for 1925, $341,970,000, or nearly 90 per cent, represents products reported in detail, and $38,791,000 represents the value of products reported only in lump. The output reported in detail was distributed as follows: Chocolates, 295,704,000 pounds, valued at $102,790,000; bar goods, 282,658,000 pounds, $63,515,000; hard candy, 190,350,000 pounds, $31,702,000; pan work, 59,499,000 pounds, $8,973,000; all other confectionery, $107,231,000; salted nuts, 28,378,000 pounds, $12,178,000; miscellaneous products, $15,581,000.

In addition, confectionery was manufactured to some extent by establishments engaged primarily in other industries. The value of the confectionery thus produced outside the industry proper in 1923 was $13,548,000, an amount equal to 3.7 per cent of the total value of products for the confectionery industry. The corresponding value for 1925 has not yet been calculated but will be shown in the final reports of the present census.

Of the 1,928 establishments reporting for 1925, 215 were located in Pennsylvania, 196 in New York, 191 in California, 133 in Massachusetts, 127 in Illinois, 119 in Ohio, 73 in New Jersey, 61 in Missouri, 61 in Washington, 52 in Maryland, 52 in Michigan, and the remaining 648 were distributed through 38 other states and the District of Columbia.

The statistics for 1925 as presented herewith are preliminary and subject to such correction as may be found necessary upon further examination of the returns.

Table 2—Products, by Kind, Quantity and Value for the United States, 1925

Total value of products reported by 1,928 establishments	$380,761,000
Value of products for 1,581 establishments which reported in detail	341,970,000
Value of products for 347 establishments which did not report in detail	38,791,000
PRODUCTS REPORTED IN DETAIL	
Chocolates:	
Pounds	295,704,000
Value	$102,790,000
Fancy package—	
Pounds	124,613,000
Value	$63,179,000
Bulk—	
Pounds	171,091,000
Value	$39,611,000
Hard candy:	
Pounds	190,350,000
Value	$31,702,000
Pan work:	
Pounds	59,499,000
Value	$8,973,000
Bars:[a]	
Pounds	282,658,000
Value	$63,515,000
Chocolate covered—	
Pounds	190,489,000
Value	$42,986,000
All other kinds—[a]	
Pounds	92,169,000
Value	$20,529,000
All other confectionery:[b]	
Value	$107,231,000
Salted nuts:	
Pounds	28,378,000
Value	$12,178,000
Miscellaneous confectionery products:	
Value	$15,581,000

[a]Includes 33,681,000 pounds of chocolate, with or without nuts, valued at $8,941,000, made as a subsidiary product by establishments classified in the confectionery industry. This class of chocolate is made mainly, however, by establishments classified in the chocolate and cocoa-products industry. Such establishments reported for 1925, 126,191,000 pounds of chocolate, with or without nuts, valued at $39,277,000. The total output of this product in 1925, as far as separately reported, was, therefore, 159,872,000 pounds.

[b]Data for quantity incomplete.

Table 1—Summary for the Industry for the United States, 1925 and 1923 ....

	1925	1923	% of increase or decrease (—)
Number of establishments	1,928	2,014	—4.3
Wage earners (average number)[a]	63,596	63,485	0.2
Maximum month	Nov. 78,706	Nov. 78,246	...
Minimum month	July 51,804	July 53,523	...
Per cent of maximum	65.8	68.4	...
Wages[b]	$55,229,000	$54,882,000	0.6
Cost of materials (including fuel, electric power and containers)[b]	$205,412,000	$202,719,000	1.3
Value of products[b]	$380,761,000	$366,256,000	4.0
Value added by manufacture[c]	$175,349,000	$163,537,000	7.2
Horsepower	98,956	91,455	8.2

[a]Not including salaried employes. [b]The amount of manufacturers' profits cannot be calculated from the census figures for the reason that no data are collected in regard to a number of items of expense, such as interest, rent, depreciation, taxes, insurance and advertising. [c]Value of products less cost of materials.

Table 3—Value of Products, for Leading States, 1925

(This table presents statistics for all States which reported products valued at $3,000,000 or more and for which separate figures can be given without disclosing the operations of individual establishments. One of the "All other States," however, reported a larger value of products than some of the States shown separately.)

State	Number of establishments	Value of products
United States	1,928	$380,761,000
New York	196	64,472,000
Illinois	127	61,783,000
Massachusetts	133	49,334,000
Pennsylvania	215	36,863,000
Ohio	119	20,357,000
California	191	18,575,000
Missouri	61	17,207,000
Wisconsin	48	11,742,000
Minnesota	49	9,148,000
New Jersey	73	7,312,000
Maryland	52	6,977,000
Michigan	52	6,547,000
Tennessee	21	6,261,000
Georgia	25	5,673,000
Washington	61	5,437,000
Indiana	48	5,146,000
Texas	50	5,090,000
Iowa	41	5,053,000
Utah	17	4,038,000
Colorado	48	3,171,000
All other States*	301	30,575,000

*Alabama, 14 establishments; Arizona, 1; Arkansas, 10; Connecticut, 21; Delaware, 6; District of Columbia, 12; Florida, 7; Idaho, 5; Kansas, 23; Kentucky, 21; Louisiana, 15; Maine, 23; Mississippi, 2; Montana, 11; Nebraska, 12; New Hampshire, 3; New Mexico, 2; North Carolina, 14; North Dakota, 4; Oklahoma, 11; Oregon, 33; Rhode Island, 12; South Carolina, 3; South Dakota, 3; Vermont, 3; Virginia, 19; West Virginia, 10; Wyoming, 1.

Table 4—Basic Materials by Kind, Quantity and Cost, as Reported by 1,279 Establishments, 1925

(The combined value of products reported by the 1,279 establishments which reported materials in detail was $306,725,000, or 80.6 per cent of the total value of products for the industry as a whole. The remaining 649 establishments did not report materials in detail.)

	Quantity (pounds)	Cost
Total*	.....	$103,955,000
Sugar	596,363,000	35,004,000
Milk and milk products	58,157,000	6,170,000
Chocolate coatings	131,030,000	24,302,000
Chocolate liquors	13,783,000	2,256,000
Corn syrup	346,886,000	12,383,000
Cocoa beans	14,553,000	1,736,000
Cocoa butter	7,808,000	2,097,000
Cocoa powder	2,007,000	165,000
Nuts	116,960,000	17,191,000
Fruits	13,800,000	2,651,000

*In making use of the figures in this table it must be borne in mind that they do not include data for cocoanut, flavoring syrups, extracts, and other materials not specified above which are used in making confectionery, nor for wax paper, tin and other foils, or containers sold with the goods, and therefore do not represent the total cost of all materials consumed in the manufacture of confectionery by the establishments covered by this table.

The Candy Test for Suagrs

(*Continued from page* 19)

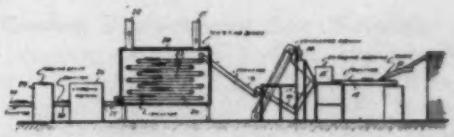
error, unless the placques are made and preserved under identical conditions. Of course, for comparing strength the placques should not be handled more than is absolutely necessary and should not be broken until after crystallization has started. If the test is made for the purpose of determining the degree of caramelization without considering strength, the placques may be broken up and the portions used for appropriate tests, without waiting for crystallization or "graining" to occur.

Satin Finish Hard Candy

(*Continued from page* 26)

ting flow of material with minimum labor and lost motion plays a leading role in modernizing the manufacture of candy today. It is pathetic to see some of the old general line candy manufacturers change superintendents every little while because they don't "produce" when the trouble lies in their antiquated equipment and hopelessly inefficient factory layout. A good production man is licked before he starts with such conditions unless the boss is wise enough to *invest* some money in alterations and competent candy engineering counsel.

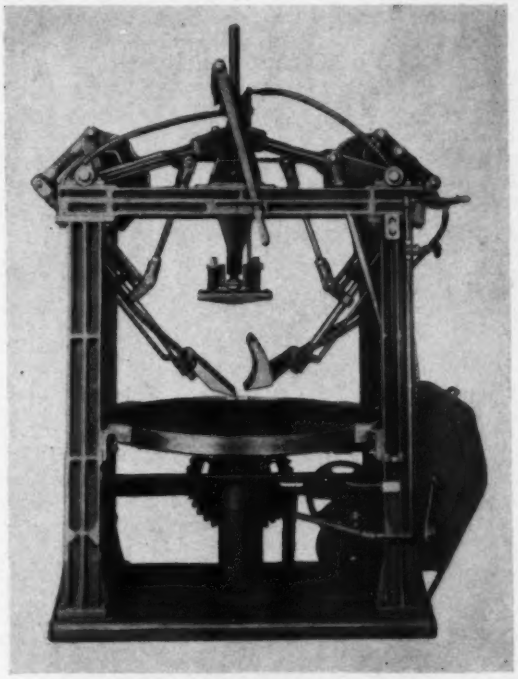
The day of making hard candy with a stick, kettle and slab is over. The successful hard goods manufacturers spare no expense within reason to install labor saving and profit producing equipment and retain the skilled artists—candy craftsmen—who know how to use ingredients and handle the goods in process to perfect this elite of confectionery known as *Satin Finish Hard Candy*. And may we hail the genius who develops practical methods which will make hard candy resist atmospheric action. I believe this will come in the not far distant future.



Patent No. 1,608,302. This invention relates to a new and improved process for making confections, as for example, candy confections which consist of a center that is enveloped with a multiplicity of edible units and then enrobed with a finishing coating such as chocolate.

The primary object of the present invention is to provide a continuous process for manufacturing confections so that it shall be unnecessary to handle the same from the time the centers or uncoated pieces are fed to the machine until they are ejected as finished confections ready for wrapping and boxing, thereby materially expediting the production of the confections and effecting a large saving in the cost of making the same.

What's New in Supplies



New Machine for Mixing Color and Flavor in Hard Candy

Another hand operation has been eliminated in the manufacture of candy—that of working in the color and flavor in solid hard goods. Candy makers will be less inclined to throw the flavor in the kettle when the boss isn't looking with a labor-saving machine like this. We understand the machine will handle a 60 to 70-pound batch every 3½ minutes. The table, which is 42 inches in diameter, is water cooled. The machine requires one horsepower motor, is chain driven, weighs one and one-half tons.

New Glass Jar "Package"

A new "consumer size" glass jar with moisture-absorbing pad inside the screw cap is now available. The merits of this jar in keeping hard candy in attractive eatable condition while being consumed in the home, as the jar is opened and reopened, is obvious. A further feature from selling standpoint is the optical illusion created by its oval six-sided design—the jar when filled appears to contain a greater amount of candy than the round jars of same capacity. The metal caps are available in a variety of colors and can be lithographed or embossed if desired.

New Airtight, Moisture-Proof Carton

One of the leading manufacturers of corrugated fibre board has developed a waterproof and moisture-proof board which can be made up into an airtight shipping carton for bulk goods or in form of small display container for counter goods, to sell for 5 to 15 cents—just what the hard candy trade has been looking for for years. Recent tests have proven this container very much superior to wooden pail from standpoint of protection of the goods.

Fluid Color Grader Tests Whiteness of Sugars

The announcement of the Bureau of Agricultural Economics that the Bee Culture Laboratory at Washington has succeeded in devising an accurate color grading standard for extracted honeys, has awakened considerable speculation as to the adaptability of the new grading device for testing the whiteness of sugar solutions and syrups other than honey. During the intial demonstration of the grading process at the Bureau's New York office, it was indicated that the honey trade might adopt the government gradings as the basis of their future transactions and call upon the Department of Agriculture for "certificates of grade" on controversial shipments the same as is now being done on domestic peanuts and similar commodities. A nominal charge is made for this service to cover the cost of inspection and grading.

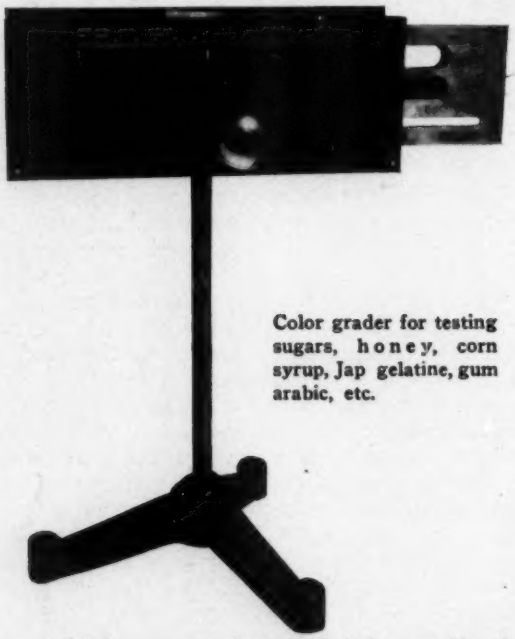
For Grading Confectioners' Raw Materials

The instrument employed in the grading process offers a wide range of possibilities in the confectionery laboratory. With possible variations in the color scale it might be employed to test the whiteness of standardized sugar solutions, corn syrups, maple sugar and maple sap syrups, gelatine, gum and agar solutions—in fact, any fluid or soluble material whose quality or market value is affected by minor variations in color.

In the case of refined sugar solutions, trifling differences in whiteness (assuming the sugar to be unbleached) often portray their inherent defects more forcibly than a painstaking chemical analysis. First run cane sugar liquors are whitest in color and produce the "strongest" refined sugars, which is to say, sugars which

will make good hard candies. They will stand up longest, retain their gloss and resist the tendency to become sticky. Hard candies produced from the less-white, later runs of sugar possess these qualities in diminished degree. An accurate color grader such as the Department of Agriculture is using in their honey grading experiments should enable us to detect these minor color variations and predict what each lot of sugar will do. Sugar which is not completely satisfactory for one purpose may be diverted to another department before any damage is done.

The same thing applies to corn syrup. Rarely are two successive shipments alike in color. One lot will have been re-heated perhaps once too often with a resulting increase in caramelization. The tendency of the syrup to break



Color grader for testing sugars, honey, corn syrup, Jap gelatine, gum arabic, etc.

down and become amber under the application of moderate temperatures is a dependable indication of what will go on in the batch.

Many other items such as Japanese gelatine, and gum arabic are commercially graded according to color. The color index number of these materials may be noted from the submitted sample and compared subsequently with the deliveries. The ability to definitely record the shade of color regardless of what disposition is made of the sample, is in itself, valuable, since (as in the case of corn syrup) the sample may darken naturally with age and thus destroy the basis of comparison.

We have digressed somewhat to explain the significance of these apparently minor color variations. Suppose we permit the manufacturer of the grading instrument to tell us about it in his own words:

"Modern trade demands that colored fluids, such as honeys, varnishes, oils, vinegars, inks, etc., be marketed at definite colors. This means that reproducible and constant color scales must be established. In response to this demand, fluid color standards as well as wedges of colored glass have come into use. Fluid standards are, however, subject to change with time while colored glass wedges, of reasonable length, fail to include the range from almost complete transparency (water white) to almost complete opacity. A range of this magnitude is, however, found in the color grader.

"The principle of the instrument is shown in the following sketch. Here A is a metal plate with two horizontal slots covered, respectively, by a wedge of colored glass G (amber for honey, oils and varnish) and a hollow glass wedge V, to be filled with the fluid in question. Sky light falls upon a piece of diffusing glass F which, in turn, sends light through the two wedges and through the slits C and D. For color matching it is merely necessary to move the slide A in its groove until the slits C and D have the same color. The color number is read off the scale S directly.

"The tremendous range of shades which may be matched with this instrument is due to the reversed position of the wedges G and V. Without going into the details of calculation, it may be stated that the range covered by these two reversed wedges (the colored glass wedge being 6 inches long and ¼ inch thick at its darkest end) *is equivalent to that of a single wedge of the same material and wedge angle whose length is 24 feet and whose greatest thickness is one foot.*

"The actual instrument is supplied with two scales: one is a purely linear one for general use, while the other is the true color scale. The latter color scale was worked out for honeys in cooperation with the U. S. Department of Entomology (Bee Culture Laboratory)."

The following is the range of shades worked out for the commercial honey grades by the Department of Agriculture:

True Color Scale	Linear Scale
Water-white	.0— .8 cm.
Extra white	.8— 1.7 cm.
White	1.7— 3.4 cm.
Extra light amber	3.4— 5.0 cm.
Light amber	5.0— 8.5 cm.
Amber	8.5—11.4 cm.
Dark	11.4—14.0 cm.

Samples of honey of accepted gradings were collected from all over the country in determining the divisions of the true color scale.

The grader, mounted on a short cast-iron pedestal, is set in front of a window so that the white (diffusing screen) is illuminated by sky light. The hollow wedge is filled with the liquid to be tested and the rack and pinion which slides the wedges along is worked back and forth until a color match is obtained. Both scale readings are recorded. Since the strong beam of transmitted light quickly fatigues the eye it is desirable to make three to five independent settings and average the readings.

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